(SECOND EDITION)

The Theory of Evolution

(AN INQUIRY)

PART I

As Applied to Man

PART II

As Applied to Nature

Henry Shilling
Freeport, Pa.

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FROM A
LAWYER'S POINT
OF VIEW

BY
NATHAN G. MOORE

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213
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CONTENTS

The Theory of Evolution

PART I

As Applied to Man

CHAPTER		PAGE
I	Definitions and Other Background.... Various sub-heads, including "The Literature of the Subject"	1
II	Analysis of the Issues, and Steps Toward a Conclusion.....	11
III	Two Phases of the Evolution Theory Compared	39
IV	The True Issue..... Various sub-heads, including "A layman's understanding of special creation"	73
V	Indirect or Inferential Proofs..... Various sub-heads, including "The course of the human embryo" "Similarity of structure"	85
VI	The Common Ancestor..... Various sub-heads, including "Test of Verity" "How to find a just criterion"	105
VII	The Direct Evidence..... Various sub-heads, including 1. "The Java Ape Man"—with cuts 2. "The Heidelberg Man"—with cuts 3. "The Piltdown Man"—with cuts 4. "The Broken Hill Man"	127
VIII	The Neanderthal	157

2060

CONTENTS

CHAPTER PAGE

IX The Long Ages; Where Was Man?....183
Various sub-heads, including
"Differences among the scientists"
"The evolution theory, as indicated by the Tree of Life"
"Testing development by experience"
—with cuts

X Forming and Reforming a Theory.....207
Sub-head, "A distinguished author changes his mind"

XI A New Epoch: The Cro-Magnon Man..217

XII The Question of Time.....223

XIII A Summary of Conclusions.....229

Epilogue 243

PART II

As Applied to Nature

Introductory 247

I Unity of Origin a Fundamental Feature of the Theory of Evolution.....251
Various sub-heads, including
"Some definitions of evolution, and their meaning"
"Our suggested definition"

II Continuity or Not?.....273
Various sub-heads, including
"Gushes and spurts, as compared with persistence"
"The period preceding the fossils"
"The period beginning with the fossil era"

CONTENTS

CHAPTER PAGE

III THE LAW GOVERNING DESCENT, AND HOW TO TRACE IT.....287
Sub-head "What is law?"

IV THE RIGHT STARTING PLACE FOR THE STORY OF LIFE 295
Various sub-heads, including
"Reducing the complex to the simple"
"The unhappy results of wrong-end to"
"The period of the thick mists"

V TWO "RIVAL THEORIES" OF LIFE; RESEMBLANCES AND DIFFERENCES.....307
Various sub-heads, including
"The essence of each theory, and how to find it"
"The essence of the inquiry"
"The application of the comparison"

VI REASONABLE TESTS OF VERITY.....320
Various sub-heads, including
"Variation vs. Evasion"
"Application of the law governing descent"
"The uniformity of germ cells"
"A series of obstacles"

VII A RULE, BUT NO REIGN.....335
Various sub-heads, including
"One instance is the plants"
"Another instance is the Pterodactyl"
"Another instance is the horse"

VIII SUCCESSION SINCE THE FOSSILS.....349

IX A SUMMARY OF CONCLUSIONS.....367

The Theory of Evolution

PART I

As Applied to Man

CHAPTER I

Definitions and Other Background

It is hoped in this chapter to clear up some of the fogs which surround the subject of human evolution, and to direct the attention of intelligent readers in all lines of life to the merits of the question, notwithstanding the general impression that it lies wholly within the domain of science.

CHAPTER I

Definitions and Other Background

Preliminary Conditions.

On the general subject of evolution as applied to nature other than human there is in existence a mass of fairly analyzed and differentiated truth, largely in isolated facts, to some extent verified by great names, awaiting as yet a solution which will take due account of the numerous exceptions and variations. It can not be impossible, using the facts discovered by others and considering their conclusions to judge of their soundness, even in that broader field. This the writer will endeavor to do in Part II of this book. The origin and progress of humanity, however, which is the subject of Part I, although generally supposed to depend on the same principles, must be tested by quite different criteria. The hypothesis that all life has a single origin,—which is as yet unproved, and which is the chief subject of this inquiry,—is almost the only common tie. Though often asserted in terms purporting to include both fields yet, as will be seen, it must be proved or disproved on its own facts. It is surprising how few these are numerically, and how bare and unconvincing they look when the efflorescence is trimmed away. Although the theory as applied to man is but vaguely stated, and as a general thing vaguely appre-

hended, even by many of those who write about it, it appeals not only to many of scholarly training but also to a multitude having only the *cacoethes scribendi* and a full fountain pen; and through both classes its literature has become immense. It consists chiefly however of inference, argument and generalization, and therefore even great names will not save it from error and *non sequitur*, and the correctness of its results may be challenged by any intelligent and observing person. A few writers state their propositions in simple terms, but in many cases the facts are more or less hidden in a maze of learning; yet the bones protrude, the outlines may be traced, and on the whole it is not difficult to determine the merits of the argument. So the writer, though for a lifetime devoted to a different specialty, (in which however the weighing of evidence is a constant feature), feels quite at liberty to examine the results, using fixed premises furnished by the proponents themselves, applying settled tests, and reaching conclusions in the same manner as in dealing with the ordinary affairs of life. The rules which guide us satisfactorily in weighing evidence for other uses should serve in this, and following familiar lines such a discussion ought to lead to tenable conclusions. This is the function of reasoning, and if it is faithfully done the results should be inevitable. The teachings of science, however abstruse, are not for the trained scientist alone. Its benefits are for the world of men, and no one who is invited to accept its conclusions is too far out of

the circle to properly question them. If he hesitates to express himself it may be because he is unfamiliar with the terminology which has grown up around the subject; yet his very freshness in the field may enable him to see errors of fact or conclusion which even the acute mind of the expert has overlooked.

The wisest scholars are patient with both inquiry and doubt, being well aware that their information is but partial, and that the conclusions of today may tomorrow be found untenable; but some,—usually the least soundly informed,—have resented differences of opinion, either as to facts or results, and have expressed themselves sometimes in terms highly supercilious. Therefore the writer thinks it desirable to go still further to defend the propriety of independent inquiry, even by laymen.

As every one knows, the courts are often called upon to examine questions involving the operation of natural forces in various fields, such as electricity and chemistry, which are only partially understood even by those devoted to their study; and sometimes also questions involving mechanical principles highly complex and technical, such as those pertaining to the radio, the telephone, the graphophone. The judge is not in such cases called upon to make original investigation. He recognizes that as a field for experts, but the learning on the subject is spread before him, and this is the material with which he must work. For such an examination his general intelligence and experi-

ence in weighing evidence ought to qualify him. Testing the soundness of a theory on its own assumptions of fact is familiar to the lawyer. It is technically known as "demurrer," and assumes, as we are doing here, the verity of the facts asserted, not impossible or incredible, but not of inferences or conclusions. Since the proponents are numerous, and often themselves of different minds, assertions, to be taken as true, must be generally concurred in; and of course they must be specific enough to be clear. It is some such attitude which the present writer desires to assume, and he does not regard this either as an intrusion into the field of experts in science nor as suggesting superior knowledge on his own part. Like the judge, he ought to be competent to weigh and compare the facts and conclusions of experts with fair assurance, especially where all the supporting evidence is before him, and the question is only as to the proper result. It will be seen below how far the present writer is able to maintain this balanced attitude, but at least the proponents will have no cause to challenge his method if they have an opportunity to state their own case; and when the work is done the reader may be relied upon to judge whether the facts are fairly interpreted.

The Correct Mental Attitude.

An "open mind," in a proper sense, is not a mind with a hole in it, unable to retain convictions; and certainly an open mind is not a merely vacant one. An active mind can hardly be without pre-

conceptions on a subject of common discussion. These may be hardened in varying degrees, from floating to final, and still the individual may be ready and willing to investigate and frankly consider a new thought, giving it credence according to its merit. An open mind, as apprehended by this writer, is one which does not rebel at a new contention, nor set up its preconceptions or convictions to bar a candid investigation. It is probably true that the present subject is novel to some persons, and open, as other new questions, to be proved or not as may develop; but this will be rare. It has been on the first page too long. A writer therefore on either side must expect to meet hesitation, if not resistance, even from readers not committed adversely, and must make a sane and also a strong case to be convincing.

The Literature of the Subject.

Of the many writers dealing with the theory of human evolution only a few purport to state the ultimate facts on which it is founded. Perhaps it is too often deemed to be wrapped up in the underlying hypothesis that all living nature has one origin, and for that reason it is supposed that a general statement is sufficient to include humanity with the rest. This is not true. A discussion of the subject, however general when it begins, always merges into special contentions when applied to man. An example is the argument from embryology and similarity of structure, which can only apply to that phase which deals with

humanity. The argument from archaeology and palaeontology also, while from the terms used appearing to apply generally, splits up into special forms, distinctly marked, as soon as the discussion reaches the development of man. This explains why the present writer, searching for the facts, can make only a limited use of the literature of the subject. Fortunately there are books written by authors eminently fitted for such investigation which collate the materials on the human phase of the subject. The leading ones are "Men of the Old Stone Age," (1924), "Origin and Evolution of Life," (last reprint 1925), and "Man Rises to Parnassus," (1928), all by Dr. Henry Fairfield Osborn, of Columbia University; "Human Origins," 2 volumes, (1924), by Dr. George Grant MacCurdy, of Yale University; and "The Antiquity of Man," 2 volumes, (1925), by Sir Arthur Keith, of the Royal College of Surgeons, England. There are also interesting discussions of a more general character such as "Evolution," by Prof. Vernon Kellogg, (1924), lately of Leland Stanford University. "The Nature of the World and of Man," (1926), is a compilation of articles on phases of the subject with which the several writers are especially familiar, written by sixteen members of the faculty of the University of Chicago, headed by Prof. Horatio H. Newman. "Man and the Attainment of Immortality," by Dr. James Y. Simpson, of the New College of Edinburgh, is a careful work; so also is "Ways

of Life," by Dr. R. S. Lull, of Yale. A recent significant book (1928), "Creation by Evolution," is a symposium on the general subject by twenty-four eminent scholars, British and American. Another, still more recent, (1929), is "Our Face, from Fish to Man," by Prof. William K. Gregory, of Columbia University. Another, by Prof. Edwin Grant Conklin, (1927), is entitled "The Direction of Human Evolution." The present writer will have occasion to refer in all to a score or more of individual books and a large number of authors. The doctrine of evolution, as supported by its proponents, filtered through all these sources, can hardly fail to truly exhibit the best case scholarship can make for it, and it would not be easy for the present writer to state it unfairly if he would. In most instances by those authors the limited phase of the question to be first discussed here, i.e. as to humanity alone, is not separately treated, and in Part II of this book, where the wider field of nature in general is to be examined, all these sources, or nearly all, will be again scanned for information.

The learned books of Mr. Huxley and Mr. Darwin are almost at the base of the monumental literature of the subject, but they have been wrought over by present day experts, and fitted into discoveries more recently made, so that the substance of their contributions to the subject, corrected by newer light, is found in the modern books. Both of these eminent men dealt only

indirectly with human evolution, using materials gathered in reference to nature in general. Mr. Darwin said, in the introduction to his "Descent of Man," (2d Edition), that its materials were selected from the notes and observations prepared for his former books relating to nature study in general. That book does not purport to be a record of research into the origin of man. He himself says of it in his introduction: "This work contains hardly any original facts in regard to man." On the contrary it is a discussion, as any reader may see, of what he deems the proper deductions as to man from investigation in other fields. He says of it, in his Introduction:

> "I have been led to put together my notes so as to see how far the general conclusions arrived at in my former works were applicable to man."

It is essentially therefore argument, inference, generalization, as distinguished from a treasury of facts. Indeed the chief discoveries in the field of archaeology and paleontology relied on now have been made since 1871, when the Descent of Man first appeared, and only a few were known to Mr. Darwin.

It is not the writer's purpose to urge a theory adverse to evolution. His book is intended to be an inquiry, in a just sense. As he presents no affirmative contention he may hope not to expose himself to criticism for inaccurate knowledge of the sciences involved, nor to be held responsible for the weakness or inadequacy of any countervailing

theory. It is his sole function, as he conceives it, to weigh and consider the affirmative case which is so strongly pressed on the world by those who contend for a natural origin for man. He cannot reasonably be charged with fighting windmills if he takes his statement of the problem, as well as of the supporting evidence, from the leading scholars propounding the theory. Many of these have won distinction in the various fields of scientific inquiry involving the very question. The recent symposium entitled Creation by Evolution mentioned above affords a convenient collection of argument and assertion which one may safely use as summarizing the theory.

This writer will endeavor, where the circumstances permit, to maintain in every reference to authors or their works, a respectful attitude, and desires that all such references be interpreted impersonally, as applying only to the subject matter. Every statement said to be derived from such authorities will be given, as far as practicable, in the author's own language, but they must generally be brief, and lest in condensing injustice may be done, or from the quotation the intent of the author may not fully appear, locality references will be given which may serve as a guide, so that an inquiring reader may follow the subject as far as he will. It is only fair however to warn the reader that this suggestion is made chiefly to relieve the present writer from suspicion of unfairness in quotation or construction. The literature

discloses such divergencies in the apprehension of facts, capable, a layman would think, of assurance, and such differences in interpretation where a layman would expect results to be inevitable, that perplexities and doubts are likely to increase as examination and comparison proceeds.

CHAPTER II

Analysis of the Issues, and Steps Toward a Conclusion

In this chapter man himself is pictured as he is, with the distinguishing marks which set him apart from the other living beings. The special nature of the case which must be made to include him in a theory of development is also set forth, and some of the stepping stones by which we ought to approach the inquiry.

CHAPTER II

Analysis of the Issues, and Steps Toward a Conclusion

The Proper Nature of Such an Investigation.

The writer's purpose in Part I, dealing solely with evolution as applied to man, is to collate the governing facts, and submit to the judgment of the thoughtful reader *first*, whether they fairly prove the hypothesis that man is developed and not created; and, *second*, whether there is any law or complex of laws which can explain the facts on natural grounds. It is not a part of his plan to compare arguments, or to take issue with the conclusions of others; but neither is it within his plan to accept as correct assertions of scholars or scientists, however eminent, beyond the underlying facts. It is supposed that people of general intelligence, not committed to any particular theory, can weigh the evidence and reach conclusions with at least an equal chance of being right. Indeed on a careful examination the just conclusions ought to project themselves, and crystallize before the eye of the reader. The Supreme Court of the United States, in an analogous case, said:

"The application of familiar principles to the facts as they are developed will direct us to the proper outcome."

Even facts stated by proponents as fundamental are sometimes themselves conclusions, and on being traced are found to originate in mere surmise.

There are few subjects of which this can be so truly said. Skulls and skeletons, for example, used as a starting point for argument, are rarely discovered complete. Not only is their age or relative age usually a conclusion, as to which in some cases writers differ widely, but they themselves are often wrought out from doubtful fragments. (This combination is known as "restoration," and experts generally admit its lack of certainty.) (See the discussion of this subject in a chapter of Sir Arthur Keith's book on the Antiquity of Man, p. 537.) In such a case it is not the skull or skeleton itself but the discovered fragments which constitute the original fact. It is also true that deductions often comprise a lengthy chain, each link having its own opportunities for error, and many trustworthy investigators whose facts have been generally accepted have ceased to be convincing when they began to generalize. Inferences, by whomsoever made, command respect only in so far as they truly conform to and explain the ascertained facts.

Not only so, but to justify a credible theory there must of course be a series of facts sufficiently numerous to constitute a norm, and not themselves exceptional; also they must be significant,—i.e., of such a nature that just inferences may be drawn from them.

Thoughtful readers will eliminate, in the quest for facts, the many assertions of essay writers or lecturers, sometimes very bold and positive, but consisting of mere inferences and conclusions.

The confident manner is at times assumed, and may hide profound doubt. It is now generally admitted that the principal pertinent facts (capable of constituting evidence) must be found in remains or fossils, and these are not reliable if in themselves few or fragmentary or capable of misconstruction. Because the origin of mankind is not only of great importance in itself, but has a collateral bearing on questions of faith and religion of real significance, it is important to know whether this theory is sustained by such a series of facts as entitles it to the rank of a demonstration; or whether it is in such doubt as to be merely a hypothesis; or whether it is without convincing proof, and to be regarded only as a dream.

The Proper Mode of Approach.

In perhaps the majority of questions to be solved by individuals or society the field is clear. There is nothing to displace or replace. A certain series of facts is proved or assumed, and the problem is one of inferences or conclusions to be drawn, and perhaps action taken accordingly. Here the case is different. For centuries children have been taught the theory of special creation; lives have been expended in its propagation, and hopes have been staked upon it. We lay no stress on the technical burden of proof, but as on any other important question,—for instance a proposal to adopt an untried system of government,—we cannot ignore the necessity of uprooting as a preliminary to replanting. We therefore assume

that when a new theory is presented which may and perhaps will uproot the hopes and beliefs of humanity it must do more than raise doubts; it must adequately justify itself both by its facts and its deductions.

The Main Question.

The central principle of evolution,—its nucleus, as it were,—is the "fundamental unity of life," and humanity is said to "fall within that hypothesis." As expressed by Dr. MacCurdy, (Human Origins, p. 294), it is sought to be proved "that humanity is an integral part of the animate world." At present this is not apparent. Life is highly complex even in the individual, and its forms are multitudinous almost beyond calculation. There are five hundred thousand classified forms of mammalian life and two hundred and fifty thousand of plant life, says Prof. Kellogg, (Evolution, p. 8). To trace these and the many other forms of life back, by some satisfying test, to an original unit is the task assumed by the evolutionist. To do this by a comparison of instances would be hopeless. It might possibly be done by series or chains of facts tending to establish it, but the verity of these must be proved by enough conforming instances to show the reliability of the ultimate result. This is equally true whether the inquiry pertains to evolution in a limited field or generally in nature; or whether, in distinction from these, it relates to humanity, which is a field of its own. It is conceivable that facts may be

found so inconsistent with the hypothesis as to leave no room for argument. If, for instance, it appears that for any reason the development sought to be proved is impossible, or so highly improbable that the scientific mind itself cannot accept it, this will not only interrupt the chain of inference but negative the hypothesis. This is not a mere abstraction, for much of importance involving that question is referred to below.

The range and spread of the task of the proponent of evolution can be better appreciated upon reading an article entitled "The Size of Living Things," in the Atlantic Monthly for September, 1929, written by Dr. Julian S. Huxley, a grandson of Thomas Huxley, and himself an author frequently quoted in these pages. There he compares in fascinating style not only the size but the physical organization of the varied forms of life, almost as if his purpose were to show the difficulties evolution must meet, although he does not mention the subject. Even his language implies, as it seems to this writer, the intervention, at many stages, of some extraneous controlling intelligence. He says the biggest single cells have only attained their size "by *adopting some device* for increasing relative surface"; speaks of "the *biological invention* of a blood system"; says, as to the growth of the eye, "any advantage due to further enlargement is more than counter-balanced *by the material used*."

Did the subconscious mind for the moment slip its leash?

Concerning Man Distinctively.

The present inquiry is concerned only with the evolution of man. The argument as applied to other forms of life, though not at this point controverted, must be admitted to be as yet largely in the theoretical stage; but even if established, evolution within those fields concludes nothing as to man, for not only are the factors in the chain of argument different, but the governing conditions are not the same, and so the fields cannot be justly compared. Man has powers and faculties widely differing from all other beings, not only in quantity but quality. He has a body developed to a degree and of a character superior to the highest form of animal existence; he has a mind capable of considering, comparing, judging, willing; adapted to control, guide and utilize the forces of nature, as well as the conscious creatures; qualified for computing, analyzing, philosophizing; for speaking, singing, persuading, commanding. He has also what we are accustomed to call a spirit, with which he grasps those intangible things which most differentiate him from the animals, such as love, kindness, self-restraint, capacity to apprehend good and condemn evil; and supplementing these faculties he has also the transcendent powers of memory, vision, and imagination. It is assumed by many that all these faculties, though no part of his body, were gradually attained, *with no new cause;* but evidently, being of a different character from the physical body, this does not explain them. At most it may

be said that this is a part of the theory of development; but as such a case exists nowhere else in the world facts relating to nature in other forms, even if amply certified, would not prove anything here, and of course the assumption we have mentioned cannot be accepted without pertinent evidence of its own.

Prof. Charles H. Judd, of the University of Chicago, one of the authors of Nature of World and of Man, (p. 542), in an argument in that book designed to account by evolutionary processes for the higher qualities of mankind, states the distinction in this pictorial language:

"The inner experiences of human beings are profoundly different from the facts and forces which are dealt with by the physical sciences. The laws of human nature are expressions of a higher form of organization than appears elsewhere in the world. There is nothing more complex or more highly integrated than human thinking. There is nothing more original in the world than human combinations of ideas. In every normal human being there is an inner world of ideas, and of recognition of values, for which inner world of rational thought there is no counterpart in the world studied by the physicist, or in life below the human soul."

Dr. MacCurdy, (Vol. I. Human Origins, p. 431), who lays less stress than it seems to this writer the case requires on the higher qualities of mankind, says:

"How old is man? This can only be answered by first determining what constitutes man: . . . An answer which should approximately meet the requirements would be that the human prototype passes the line into man's estate when he becomes man *both physically and mentally*."

These high qualities and their superiority to those of other beings are also asserted by Dr. Julian S. Huxley (Creation by Evolution, p. 339) where, at the close of a discussion entitled "Progress shown in Evolution," he says:

> "What is definitely true is that the forces which we can actually detect operating in the evolution of plants and lower animals are automatic and non-conscious; whereas those operating on the human level, as we can again obviously verify for ourselves, are in part conscious, and include ideals of truth, beauty and morality."

Note the significance of this. Even if the life of man begins in a cell, and in its physical structure travels continuously to its climax, as the theory assumes, it must somehow gather up by the way a new and transcendent quality, not physical, and as mysterious and wonderful as life itself. Since other orders of life traveling the same road miss this entirely we might reasonably suppose that a new cause, applicable to man alone, has intervened; but this is opposed to the theory, and is not conceded by its supporters. It is an essential part of the theory, as this writer sees it, that the qualities of mind are somehow acquired *in the course of progression*. The path of the developing entity is, as we shall see, intersected somewhere by a profound chasm, on one margin of which the story of life as recited for us is interrupted, and resumed only on the other; but with a difference; and what a difference. The events of that intervening period are of great consequence, but the theory does not explain

them. Life did not cease, but it is no longer the same. What occurred in that absorbing stretch of time? Somewhere among its shadows consciousness, that characteristic of high humanity, was born. There arose the human mind, spirit and soul, none of which were there before; caused how? by whom? by what means? The believer in the divine creation of man, body and spirit, reverently says,—God; and to him he attributes these, whether they were implicit in the cell of origin, or acquired in the slow process of development. But from the scientist we have only silence.

Prof. Lull of Yale, (Christianity and Modern Thought, p. 51), expresses it thus:

> "On the origin of the human soul science is silent. Was it also the result of evolution? It may have been; or a divine awakening of an already evolved body, as when God breathed into his nostrils the breath of life, and man became a living soul."

Let us consider a little further these distinctive characteristics of humanity, and the field which must be covered by proof.

The facts as to man's personality and its constituents are of common knowledge. If it is asserted that he grew to this estate from a cell, and that the fact and the process are capable of proof, and,—being challenged,—are in course of demonstration, the evidence must be broad enough to cover his whole being. As therefore the facts are marshalled the tests as to their sufficiency must be equally broad. If the germ of man's distinctive qualities was contained in the original cell this

would appear in the course of development as naturally and inevitably as his physical structure. In our present inquiry then we shall look for these also. It would be futile to trace,—even if it can be reliably done,—the genesis and progress of his body alone; for if so limited it is animal, and not human, and its origin and development will not answer queries as to man complete. Proof may of course be made in fragments, or by phases and stages, but if at last it does not cover the whole case the conclusion must be adverse *in toto*. If man's mental and moral faculties were *not* in fact inherent in the original cell, but came about in later stages, or by way of supplement, then they must have had a *new cause;* but this conflicts with, if it does not destroy, the theory. It will, the writer believes, clarify this subject if, at the beginning, in formulating our criteria of ultimate judgment, we look carefully at the relation of the superior qualities of man to his total personality, and see whether they are shown to be inherent or distinct. There are abstruse questions on this subject which we need not consider. We will use only our faculties of observation, and note undeniable facts.

We are aware that man's physical senses, as a whole, are not essential to the operation of his superior faculties, and these are affected but little, if at all, by physical incompleteness, at least unless the latter be so reduced that life itself is only partial. They may be, and frequently are, at least partly wanting, without impairing the men-

tal or moral quality of the individual, whose personality,—so to speak,—is efficient without them. Helen Keller is an example. She always lacked two at least of the normal physical senses, and to that extent her communication with the world was cut off. Yet her higher human capacities were not reduced. On the contrary they seem to have expanded and enlarged. Compare her, as she is, with the same individual if she could also see and hear and speak. Would she thus or then be more or less than Helen Keller? Or if she had lacked or should lose one or more of her other senses also, would she not still be Helen Keller,—mind, heart, imagination, soul; and would she thereby lose her dreams, her aspirations, her hopes, her fears, her affections, her ambitions, or her persistent and indomitable will? Who would be willing to say,—or to stake the outcome of a theory of existence on the proposition,—that verified evidence of the origin and growth of her body from a cell would explain Helen Keller. Alexander Pope had a little, abnormal, deformed body, but even in childhood he had an acute and investigating mind. It is said that he once inquired of an older lad,—"What is an interrogation point?" to which the lad replied, "A little crooked thing that asks questions." But who would say that Pope's distorted and inadequate body was Pope? Homer and Milton were blind. Beethoven was deaf. But would these great personalities have been altered if still others of their physical senses had been wanting? How far

the human body can be reduced, by misfortune or accident, or how seriously it may be handicapped when it comes into the world, without impairing the mind, or altering the inner personality, with its memories, its affections, its powers, it is needless, and may be impossible, to say. The writer wishes here only to impress the mind of the reader, as his own has been impressed, with the conviction that no theory of development can explain man, or even make any reliable advance toward explaining him, unless, with satisfying proofs, it carries him on through and past the physical body and its senses, to and into and through those impressive capacities and qualities which evidence his superiority to every other being, and which secure him a place, according to the scriptures, "a little lower than the angels."

Finding man then such as we have described, and convinced by our senses and our judgment alike that we do not misapprehend him, the problem of evolution is to account for him. Where did he originate, and how? How did he become what he is? Where did he get his extraordinary powers and faculties?

The Alternatives.

These, this author conceives, are only two:—special creation by a competent power, exerted from without, on the one hand, or on the other evolution from within, without external aid. The theory of special creation is generally put by those writing from the evolutionary stand-

point in a closely restricted form, as if it could only contemplate the origin of humanity by instantaneous action. It has however two other phases,—one called by Prof. Lull of Yale University potential creation, which is evolution commencing with a divine creator exercising his power at the origin of life, in the amoeba stage, and conferring on that cell the capacity for full development; and the other, of the soundness of which Mr. Alfred Wallace, a contemporary of Mr. Darwin, was convinced, is evolution explaining the development of the human body, but assuming the intervention of God in the enduement of the soul. The latter is adopted by many who, with or without investigation, have accepted the evolution theory as it applies to the body, but do not think it explains the spirit. Neither of these is within our present field of inquiry, since both assume the theory of development by descent "*with modifications*," as it is called by Mr. Huxley; whereas we are here examining the development theory itself. If it is not tenable in essence then both these offshoots will fall with it. We return therefore to our proposition that the alternatives are but two.

Precedent Life.

Life, of course, was first, under both alternatives, for life is primary, and neither theory explains it, either as to its origin or its nature. Those supporting the theory of special creation assert that life was altogether lacking until originated by a pre-existing intelligence having

that power. This is adequate if true, but it is controverted by those who defend the theory of development; yet no explanation of a natural source of life has been found tenable. Dr. Osborn discusses the subject at length in Origin and Evolution of Life, but reaches no conclusion. It is the purpose of that book, as its title implies, to deal with this very subject, and to arrive, or aid in arriving, at a natural explanation of life, including its origin. To the present writer it is a pathetic book,—especially in its preface,—where the author reveals his utter failure to satisfy himself. It is like a cry in the dark,—a call for help. It is a confession that without light not yet available it is futile to contend that organism, which itself is life, can either be a cause or a contributing cause of its own profoundest essence. The reader cannot fail to see in that preface the deep disappointment of an earnest but baffled searcher after truth, expressed in the confession that he can find no satisfying evidence to confirm this most vital assumption of the development theory. He says:—

"It is best frankly to acknowledge that the chief causes of the orderly evolution of the germ are still entirely unknown, and that our search must take a fresh start."

and he candidly adds:

"I do not propose to evade the difficulties of the problem of the origin and evolution of life by minimizing any of them."

Other writers merely postpone the subject; but many frankly state that, to this time at least, the fact of precedent life must be admitted, with no

explanation. Dealing here only with discoveries as they now are, it is safe to say that in any tenable argument for evolution pre-existent life must be assumed. One recent author says, (Evolution, Prof. Vernon Kellogg, 1924, p. 111):

"It is only life that produces life. . . . There is a great gulf between what is living and what is not, and that gulf creates the great question for evolutionists and non-evolutionists alike; the question of the origin of life. The thoroughly logical evolutionist . . . simply says, sometime, somewhere, some way, living matter, in its simplest form, came from non-living matter, probably in its most complex form."

Prof. Newman (Nature of the World and of Man, 1926, p. 191) says:

"The evolutionist frankly admits that he knows nothing about how life began, and therefore confines his interest to changes in life after it appeared."

Dr. R. T. Chamberlin, of Chicago University, (Nature of the World and of Man, p. 52), says:

"But how did life start on this globe? That is a difficult question, which cannot yet be adequately answered. . . . The actual beginning of life remains an unsolved problem."

Tyndall reached the same conclusion a long time ago, after careful experiment, and said:

"I affirm that no shred of experimental testimony exists to prove that life has ever appeared independently of antecedent life."

—*Nineteenth Century, 1878, p. 507*

and Mr. Huxley said, in an article on Biology in the Encyclopædia Britannica:

"The present state of knowledge furnishes us with no link between the living and the not living."

2060
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Dr. David Starr Jordan, (Creation by Evolution, p. 4), says:

"All life, so far as we know, starts from life, and every living being had some sort of living ancestry."

"As to the origin of life on the earth we know nothing whatever."

Dr. C. Stuart Gager, (Ibid. p. 142) says:

"Studies of great thoroughness and accuracy have led biologists to reach the unanimous conclusion that every living thing comes into existence as the offspring of other living things somewhat similar to itself."

"Our present inquiry, however, concerns not the origin of life, but the method by which the present condition of the plant world has been reached, *granting the existence of living organisms to start with.*"

Dr. Richard S. Lull, (Ibid. p. 256) says:

"When, where, and how life began, however, we do not know, * * As students of the origin of the earth must assume the pre-existence of matter and energy, so students of organic evolution must assume the existence of something organic to evolve, but science is silent on the great problems of first causation."

It is therefore taken as admitted that life was not evolved; but it is the actuating cause of all development. The assumption of an intelligent creator of anything is repelled with scorn by many scientific writers, but since the original existence of life is not denied, and no one can explain it, and the most acute mind cannot even devise a hypothesis adequate to account for it, and there was available an efficient cause whose power many of the scientists concede, is it really an indication of dullness to suppose that it was *created?*

Many continue to speculate on the possible stages by which life *may* have come to exist before

its presence became visible or its effects tangible, and this writer regards that as a legitimate field for scientific inquiry; but no one has done more, if his speculations were proved, than to introduce another link into the chain of development. For example, if it is chemical in its nature the question must remain when and how its chemical properties were acquired. Or if, as others say, life was imported in fragments from other worlds falling on the earth, its earlier origin at the point of departure still remains a problem to be solved.

An analogous question arises as to the source of the amazing activity of the electron, and its mysterious power. Perhaps more remarkable than its activity is its certainty and dependability, working out always like results under like conditions. Where and when and how did these qualities and powers originate? Prof. Pupin, of Columbia University, one of the most eminent and successful of the investigators in the electrical field, is reported as saying on this subject, at a recent alumni dinner of the Polytechnic Institute of Brooklyn:

"God only knows where, when and how electrons were created. Having settled that question, mystery vanishes from electrical science and the rest is easy.

"When man discovered the electrons he discovered the oldest and most efficient workers and the most law-abiding servants in the cosmic universe.

"God created the electrons to be his assistants in the creation of the universe. It is the service of the electron which carries the human voice around the terrestrial globe; it carries the power from coal mines and mountain

streams to our homes and makes us comfortable; it pulls our subway trains."

In this field also man's investigations, though intended to establish origins as well as movements, must begin by assuming a pre-existent activity, and therefore a pre-existent cause, which he cannot explain.

Beginning then, as we must, and as the scientist must, not with the earliest application of external force, but with the earliest *automatic* movement of matter, we go on to the next stage of our investigation.

The Course of Discussion.

The arguments of the proponents of evolution, while beginning with the same assumption of origin, and directed to the same conclusion, are by no means harmonious as to method of progression. It would seem that if it was indeed possible for a single cell, having no characteristics except life, to emerge, in a long or short time, into three quarters of a million classified species, each an independent type, there ought to be among its proponents an agreement as to how it could come about; but the attentive reader of the elucidations of the subject cannot fail to see that the asserted statements of fact and result lead into alternative expositions of method, so different that both cannot be true. No one, it seems to the writer, can examine the merits of either without a clear apprehension of both; but first we should distinguish the supposed lines of descent by which man *could*, it is said, have arrived at his present state.

The Theoretical Lines of Descent.

This sub-title implies definite lines, the stages of which can be pointed out and recognized, but, as will be seen, this is much too specific. The theory of evolution itself is not definite, but presents two alternatives, only one of which can be sound. These will be considered below. The theoretical lines of descent manifestly ought to vary accordingly, but as found in the books this distinction is not made. We present these here as we find them, but treat the theory as a whole because we find it so treated.

The earlier belief was that descent was through the apes, and that continues to be the popular conception. Mr. Huxley, Mr. Darwin's chief supporter, so indicated. Since, in view of the departure from that opinion now, this may be questioned, we quote the following from (Darwiniana, p. 151):

"Nor, having got there, (to the acceptance of the general theory of evolution), do they seem likely to stop until they have reached the center of the great region, and accepted the ape ancestry of, at any rate, the body of man."

(See also Man's Place in Nature.) But even he recognized the chasm between them, the link or links to fill which had not been discovered. As to the development of the human mind Mr. Huxley had scarcely a ponderable suggestion; (See Darwiniana, p. 161). But even his theory as to the line of physical descent is not now entertained. Prof. Vernon Kellogg says on that subject, (Atlantic Monthly, 1921, p. 585):

"The biologist does not claim that we are directly descended from the chimpanzee, or any other particular anthropoid or particular lower kind of monkey that we know, either living or extinct."

And in his book (Evolution, p. 216) he says:

"Man and the present anthropoids are descendants, along distinct lines, of some now extinct common ancestor. This ancestor has yet, if ever, to be found."

To the surprise of the contemporaries of Dr. Osborn, who believed him to be fully committed to the theory of an ape-like common ancestor, he has now departed from that view. Dr. William King Gregory, writing when he supposed Dr. Osborn's position to conform to his own, says, Creation by Evolution, p. 290:

"Professor Henry Fairfield Osborn, although formerly doubting the derivation of man from an arboreal stock, now finally accepts the remote arboreal origin of man and the derivation of both man and anthropoids from a common anthropoidean stock."

But before that was written, or at least before it was in type, Dr. Osborn proclaimed a definite departure from that opinion, both in respect to the arboreal habits of the supposed ancestor and his ape or ape-like character. His earlier view he now regards as untenable, and explains his present opinion in his new book, "Man Rises to Parnassus," p. 214, from which we quote:

"The author has now entirely abandoned the arboreal hypothesis, and believes that man has descended from cursorial or running ancestors."

In the same book, (p. 84), as to the ancestral line of humanity, he says:

"The myth of our ape-ancestry lingers on the stage, in the movies, in certain anti-naturalistic literature, in caricatures of our pedigree, even in certain scientific parlance, but the ape-ancestry hypothesis is becoming out of date, and its place is being taken by the recent demonstration that we are descended from Dawn Men, not from Ape Men."

Just what Dr. Osborn means by the language just quoted it would be a departure from our present line of thought to consider; but it suggests the inquiry who or what were the predecessors of the "Dawn Man." If there never was a non-human ancestor of humanity then there could not have been a common ancestor, nor a "unit of origin"; and man could, from the beginning, have been nothing different. This is a wide departure from the theory we are considering, and very important; but it is to be examined in another connection.

As now averred we note that there is no unanimity among the scientists,—even those most conspicuous for learning on the subject,—as to man's line of descent. If the facts were indeed clear enough to support any theory we would expect all the more learned scientists to be aware of them. We would even expect Dr. Osborn to trace, or show us how to trace, the ancestral line of the "Dawn man." It would be natural perhaps for the *theories* to differ, if differences there must be, but the *facts* themselves should not be in doubt. Here, on the contrary, only one broad *theory* of the origin of our race is urged, but *conflicting views about the facts.* This indicates that the theory was framed first, and the search for supporting facts

afterwards. Dealing here with descent in general, we note that there are four distinct contentions as to man's line of descent presented, each strongly supported. That difference implies a serious lack of convincing evidence, for if the facts were clear not only would all scientists know them alike, but any new theory to explain them could be easily tested. It ought to be out of the question to test the facts by the theory. We shall have occasion to consider hereafter the question whether a theory can ever be trusted which proceeds on inaccurate knowledge of the facts. At this point we are merely showing that the wise gentlemen who are pressing this theory are not agreed upon its basis of fact. This much, at least, must be true beyond controversy;—if there was a unit of origin, as the theory insists, then man had, somewhere in the line of descent, an ancestor, or many in succession, *unlike himself*. The scientists assert that this is true, but they do not agree about what he was like, nor where in the line of descent he appeared, nor how he can be identified. We cite below language of able scientists which seems to mean that man's closest relationship, not only by cousinship but even by descent, is with the ape,—although some writers seem to avoid saying so. Now Dr. Osborn is of the opinion that they are all wrong. The learned doctor is, at least thus far, definite now, though not before; but nobody else asserts any definite view. All use vague language, nearly equivalent to saying they do not know. Dr. Osborn suggests a "dawn man," but does not indi-

cate where he came from. Dr. Kirtly Mather compares that ancestor to a rat, but does not indicate how he came into the human line. Dr. Lull says he cannot imagine what he could be like if not ape-like. Yet all join in asserting that the theory of his descent from a cell of protoplasm is sound. At least, then, it may be affirmed that the theory was devised *first*, and the facts to support it are still in dispute.

More or less vague averments on this point suggest that, however expressed, the ape is always in mind. This is indicated by the following quotations: Dr. Arthur Smith Woodward (Creation by Evolution, p. 132-3) says:

"Though the fossil apes were very different from modern apes, they must be regarded as the ancestors of both the modern apes and man."

Prof. Richard S. Lull, (Creation by Evolution, p. 266) says:

"Living monkeys * * * are found today in both Africa and Asia, and although all are derived from the same root as mankind, the great or man-like apes, especially the gorilla and chimpanzee, are our next of kin, being separable from man, aside from spiritual values, by what in other creatures would be considered inconsequential details. It is only our lack of perspective that makes us imagine a considerable gulf between us."

"That man and the great apes are cousinly descendants from a common stock all scientists believe."

Prof. Wm. King Gregory, (Creation by Evolution, p. 290), says:

"The conclusion remains, based upon a vast accumulation of evidence, that the higher anthropoids, especially the chimpanzee and the gorilla, are man's nearest surviv-

ing relatives, and that the remote 'common ancestor' * * * was a tailless, partly tree-living, pro-anthropoid, in many respects far more like a female chimpanzee than like a modern white man."

Prof. Samuel Jackson Holmes, (Creation by Evolution, p. 293), in an article entitled "The Human Side of Apes," says:

"Bone for bone, muscle for muscle, nerve for nerve, we are remarkably close counterparts of our anthropoid relatives."

"A comparative study of brains, however, would lead us to infer that the ape stands nearer than any other animal to man in mental endowment."

Prof. G. Elliott Smith, (Creation by Evolution, p. 321), in an article entitled "The Evolution of the Brain," says:

"On the most conservative estimate it is much more than a million years since the ancestors of man and of the apes parted company from their common parents. The apes gradually lost the power to develop further the brain and the mind in the way that the ancestors of man were able to do."

We must of course blame ourselves if we do not fully grasp the meaning of these statements. They seem to suggest that though the scientists do not now contend that man descended from the apes, they cannot escape the fact that "it looks mighty like it." The lack of definition here is marked. It cries aloud for something more; yet it seems to be supposed that we are unduly curious if we press the scientist to tell us what his theory on this point is.

The newer theory however that in spite of the fact that apes and men are not in the relation of

direct descent they had a common ancestor, but that ancestor was *not* a monkey, is even less convincing than the other: *First*, because it is not supported by any evidentiary facts, fossil or otherwise. Nobody claims to trace the supposed branches back to a defined original. That original is both unproved and unidentified. He is at most a part of the hypothesis, devised to fill out a gap in the argument; *second*, because the theory of a common ancestor is impossible. If so it is of course untenable. That subject will be discussed in Chapter VI, "The Common Ancestor"; and *third*, because, while it carries man's origin back undetermined generations to reach a common stock it does not take account of the fact that the ape origin also must be carried back; and since both are said to have developed from something lower that earlier ape also must have been inferior to the present one. An advance in man must therefore be compared with a *pro rata* change in the ape. Unless they have advanced at an unequal rate, which cannot be known, tracing the two branches to any given point of time would carry them back *pari passu*, and they would be equally unlike at every stage. Thus the argument must be, at any interval, the same as at present, and the common stock theory leaves the question *in nubibus*, and the contention that there was a common ancestor of apes and men, of any description, is unproved. It may be shown elsewhere that it is incapable of proof. Yet it is a part of the hypothesis, and while its acceptance ought to depend on evidence and logic it

seems to depend almost wholly on temperament. It is appealing or not according to the degree in which one is impressed by the hypothesis of universal unity, and by the argument from similarity of structure. For reasons given elsewhere the present writer deems the latter argument unconvincing, but it is involved in the assumption of the original unity of all life, and when that proposition once gets a solid grasp it has great tenacity.

Even the scientist is apt to find his imagination more convincing than his microscope. But it is proof we are seeking, and conviction without it is no more than cock-sureness. This is not scientific, but we regret to find that it is not uncommon, even among the scientists. It is confidently asserted that there are definable stages in development, but no one knows with assurance what they are, nor in what order they occur. For this, as we shall see, there is no evidence; but the breadth of the assertion makes it difficult to separate ascertained fact from mere filling. Many assertions are made as definitely as if the writer were an eye-witness, but appear, on turning the page, to be inferential only. An illustration is the article entitled "Progress shown in Evolution" by Julian S. Huxley, in Creation by Evolution, where, step by step, development wholly theoretical, and hereafter shown to be impossible, is described with all the assurance of a spectator.

In this chapter the author has thought it sufficient to show in part the difficulty of the evolutionist's task; and to this point deems that enough.

These differing views of the line of descent are not altogether hypothetical. Each is said to be supported by evidence. Thus they are not to be ignored. Their comparative merits will be considered in Chapter IX, The Long Ages; Where Was Man? To that point we postpone the further discussion of the question, and revert here to the two marked phases in which the theory itself is presented, both of which, as we have said elsewhere, cannot be true. These phases are the subject of our next chapter.

CHAPTER III

Two Phases of the Evolution Theory Compared

It is intended to show in this chapter that the doctrine of descent from a single origin, as extracted from the books, appears in two phases, essentially different, neither of which is well defined. The author endeavors to set out both of these clearly, and to analyze them, and to state and compare the problems involved.

CHAPTER III

Two Phases of the Evolution Theory Compared

Distinctions and Comparisons.

The argument for human evolution is presented from two different standpoints, the elements of both of which we must state in order to get a proper footing for inquiry as to their merits.

As stated in the previous chapter it would simplify our inquiry if the story of man's development, as the scientist sees it, could be stated in plain terms. This would furnish at once a starting point for discussion and a test or criterion for comparison with the discovered evidence. This however is not done, and it appears cannot be done, chiefly because that story, down at least to the time of the vertebrates, is altogether theoretical, and from that point down at least to the Cro-Magnon, mentioned later, it has no factual basis except the fragmentary fossils mentioned below, which are differently interpreted. The careful scientist rarely attempts to trace man's progress, or to affirm any steps or stages by which he came to his present condition, except by way of asserting in argument his correspondence with the hypothesis. The supposed common origin of living beings in a cell of protoplasm is of course theoretical. The existence of a cell, even at the first appearance of life, and its nature and movements afterward, need not, as

an abstraction, be denied, but it is a mere starting point for argument, for protoplasm is in existence yet, in full efficiency, and in its original form. If all nature, including man, were in fact instantaneously created, even by divine fiat, the cell would still be there, and in the same character. This is illustrated by Mr. Thomas Huxley's description of it, and its source. He shows, in his essay "On the physical basis of Life," (Methods and Results, pp. 134, etc.) that protoplasm is in the common nettle of today. Indeed it is from the protoplasm of today that all pictorial inferences found in the books are drawn. Scientists find it, both new and old, identical in all time. Manifestly then the experience of a single cell, as of the present date, under observation, is not *proof* that such a cell was the unit of life, in any other sense than it is now,—with man at his maximum. It is only the amateur, usually not yet past the stage of flippancy, who is sure enough and courageous enough to affirm as a fact what is so manifestly only a hypothesis. An illustration of this is quoted from a recent book, designed for popular reading, written by Mr. Keith Henderson, (Prehistoric Man,—a volume in "The Simple Guide Series"), —who says, page 1:

"Primitive substances such as protoplasm give us some clue as to what that delicate speck, our ancestor, is like, floating, almost inanimate, in the warm ooze."

"Hundreds of thousands of years later we see," etc., etc.

Except in some such form, or in language not intended to import verity, we cannot find in the no-

table books a statement of the theory of man's advance, even from the first to the second stage, with which we may compare the disclosed evidence.

For convenience, however, and to follow the theory as best we may, we undertake here to separate the proposition into two phases, from which we think the scientist must select one or the other, if the theory itself is sound. A choice is necessary because they cannot exist together.

The *first* phase asserts that all life can be traced back to a cell or cells of protoplasm capable of producing *all its variations*. On this theory, as development proceeds, the living thing takes on one type or family after another, not always in the same order, until the climax is reached in man. Its verity is certainly capable of proof or disproof in the same manner as other questions of fact arising in the past. If, notwithstanding its difficulties, such proof is not made, then we must reject that proposition outright, or we are at the mercy of charlatans on any question of history.

The *second* phase avoids these questions, and raises different ones, for it asserts that the cell in which human development began was *not* capable of ultimate development into anything other than man. It would follow that man was never anything but human, or on the direct road to humanity. This harmonizes with Dr. Osborn's present view of the "Dawn Man"—human even by modern tests and comparisons,—who appeared first in that form. It is not shown that he had any ancestors. He may have been Adam, for what we

know. At least it is not shown that he sprang from anything inferior, nor from any being of a different type or character. But if we ignore the Dawn Man, and return to the chain of human descent from the unit of origin, by our *second* phase he was never in any line less than human; and if in any instance or at any stage he can be supposed to have departed from this normal course it must have been a sport or eccentricity.

These alternative phases of the theory will be considered in detail below, and will there be compared and contrasted. At this point we note that not only do both these assume pre-existent *life*, but neither begins with the origin of *matter*. Both begin with a cell, which is organic, and contains life. The movement of inorganic matter by volcanic action, or by reason of heat or cold or abrasion, which may have occurred earlier, is not evolution in any proper sense, though sometimes so called. "Cosmic evolution" is not a proper term, for it has no life in it. It is brought about by a series of known causes, but these are external, and therefore not within the scope of this inquiry. It does not in any way help to prove the theory of the evolution of life, which is automatic if it is anything. How that theory can be aided by the picture of dead substance, shifted from place to place by forces it is unable to resist, is difficult to perceive. It seems to be urged only as apropos of the contention that *all nature*, living or not, is a unit; but as an argument it is artificial as well as erroneous. Both the theories or phases here re-

ferred to assume—though not without argument—the previous existence of the dead substance with which organism employs itself. Dr. Osborn, probably the leading living proponent of the evolution theory, devotes many pages of the most recent edition of Origin and Evolution of Life (1925) to the subject of inorganic matter, and entitles that discussion "The Dead World," and "The Dead Water."

This accepted fact is stated in more specific form by Dr. Osborn himself in his Foreword to the recent symposium called Creation by Evolution, which we quote here:

"The originative and creative principle of emergence, of creative evolution, appears to be lacking in the lifeless universe, even as revealed by the recent and most marvelous discoveries in physics and chemistry, and in astronomy."

It is asserted by Henry Drummond, (Natural Law in the Spiritual World), that there is no bridge between matter organic and inorganic. He says (p. 68):

"This inorganic world is staked off from the living world by barriers which have never yet been crossed from within.

"No change of substance, no modification of environment, no chemistry, no electricity, nor any form of energy, nor any evolution, can endow any single atom of the mineral world with the attributes of life. Only by the bending down into this dead world of some living form can these dead atoms be gifted with properties of vitality. Without this preliminary contact with life they remain fixed in the inorganic sphere forever."

Such also is the view of Mr. Huxley, if we understand him right. He says, (Darwiniana, p. 315):

"The plant gathers these inorganic materials together and makes them up into its own substance. The animal eats the plant and appropriates the nutritious portions to his own sustenance, rejects and gets rid of the useless matter, and finally the animal itself dies and its whole body is decomposed and returned into the inorganic world. There is thus a constant formation of organic life from inorganic matter, and as constant a return of the matter of living bodies to the inorganic world."

Dr. R. T. Chamberlin, of Chicago University, says (p. 53):

"The gap between earth materials and living matter has not been bridged."

Neither phase therefore furnishes a theory of the universe. Both deal only with the operations or movements of *life*, and the intervening period is immense. Dr. MacCurdy says (p. 431):

"The human era is infinitesimally short when compared with the age of the earth, or even with the era of life on the earth."

Dr. Lull says, in "Ways of Life," p. 17:

"Life could not always have existed on earth, for, from the nature of things, the earth has not always been a suitable environment."

This leaves a very wide precedent space uncovered, and even if the evolution theory be proven it is not adequate, in extent at least, as a substitute for the theory of special creation, which explains both if it explains either.

Limitations of the Field:

First, the accepted theory of human evolution, in either phase, must omit the inorganic world, and all its history.

Second, it must omit the whole period, supposed to be immense, stretching from the first indication of life, which the theory takes to be the earliest form of earth materials in which began life's reactions, and extending thence down to the earliest *factual* evidence on which the mind can lay hold. This is at the beginning of the fossil period, the time of the "tribal ancestors" explained below. This is not an invention of the writer, either as a fact or as a dating point, for scientists themselves, while asserting the upward advance of living things from the first cell, with no *hiatus* to break the connection, frankly admit that until at least the rise of the vertebrates, capable of leaving fossils, there is no evidence of it.

Dr. R. L. Lull, of Yale University, in an article entitled "Connecting and Missing Links," in Creation by Evolution, p. 257, says:

> "Thus the missing links in the early evolution of animal life constitute for millions of years the entire chain."

This will be considered, with ample authority, in another place.

Third, the theory of unit origin must also omit the plant kingdom, *in toto*. No expert traces any feature of plant life through man, or in that line of descent. Prof. Merle Coulter, whose specialty is Botany, (The Nature of the World and of

Man), begins the life story of the plant thus,—"There is a rather general agreement that the plant kingdom made its start in the water." He closes with references to the present extent of the plant kingdom, but he does not even intimate that it was ever anything else, nor that it could or did eventuate in man. The same is true of the book written by his distinguished father, his predecessor in the same field, (Where Evolution and Religion Meet). In another place we quote Mr. Huxley's language indicating his view that man never passed through the plant kingdom.

Not even Dr. Simpson, in his explicit and detailed description of the embryo, (see that subhead, in Chap. V), includes plant life in the series through which the developing man must pass, and Dr. Osborn expressly says, in a paragraph quoted elsewhere, that "the entire plant world has remained for an immense period, relatively balanced, static, unchanged or persistent types." Indeed it is expressly shown, by scientists well informed on the subject, if we can understand the use of English, that the plants are not, and never were, in any direct line of descent with other living things. Prof. Kellogg, (Evolution p. 171), says:

> "We must not think of the plants and animals as constituting a linear evolutionary series, the lower animals rising from the higher plants. The plants and animals constitute two separate, or, better, divergent lines of evolution, which arose from simple, generalized, common ancestors in the early history of the earth."

We suppose him to mean "common" to the varie-

ties of plants, and this must be correct, because we learn that plant and animal cells are not physically alike. This will be demonstrated, we think, in another connection; (Chap. VII; Part II, p. 337).

Fourth, it must omit the reptiles. Dr. Osborn says (Origin and Evolution of Life, p. 231), that of the eighteen orders of reptiles once existing all but five have been extinct for three million years, and the remaining five,—the turtle, the lizard, the snake, the crocodile, and one other less familiar,—are now no nearer the human line of descent than they were then. It is rather curious that Dr. Lull thinks these eleven missing reptiles did not become extinct, but suffered several contradictory incarnations in the nature of "reversed" evolution, and are now about as far back as when they began. This will be referred to in Part II. At least they have since made no forward advance.

Dr. Osborn is certified by Prof. Kellogg, (Americana Encyclopedia, Vol. 10, p. 61), to be the "present dean of American paleontologists and evolutionists." But if his authority be doubted he is supported on this point by Prof. Alfred S. Romer, of the University of Chicago, who confirms the fact, though he makes no estimate of time. In Nature of the Earth and of Man, p. 316, he says:

"We have so completely bridged the evolutionary gap between reptiles and amphibians that it is difficult to draw a dividing line between them. We do not know a single feature which absolutely distinguishes the skeleton of one from that of the other."

(p. 320): "The groups just considered flourished during the great age of reptiles, many millions of years long, but by its end they had all become extinct. Today there survives of the ruling reptiles, only one comparatively magnificent branch, the alligators and crocodiles."

(p. 322): "We might if space permitted continue with many other reptilian types, but their day is a thing of the past; only a few survivors of that great host, such as the lizards, snakes and turtles, have come down living to us."

"Neither of the groups (water reptiles and plesiosauria) survived the end of the Mesozoic."

If we may take either as correct it results that, whatever may have been the changes in the reptile world, they ceased so long ago that they could not have entered into the human chain of life; or if they did, it is not indicated by any instance; and as we are avoiding speculation, and endeavoring to draw only inevitable inferences, this field may also fairly be regarded as outside the present inquiry.

Fifth, we must also exclude a far larger field, if Dr. Osborn's authority is accepted. His language, (page 231 of Origin and Evolution of Life), is as follows:

"During this period of 3,000,000 years the entire plant world, the invertebrate world, the fish, the amphibian and the reptile world have all remained as relatively balanced, static, unchanged or persistent types."

This excluded field must also include the ants, on the authority of Prof. William M. Wheeler, of Harvard, who says, in his article on that subject in Creation by Evolution, pages 214-215:

"I have studied no less than 10,000 specimens from the Baltic amber, and 8000 from the Flurissant shales. * * All this material shows that the fossil ants, with a few

doubtful exceptions, belong to extinct species. * * We are therefore unable to detect any significant evolution of the ant as a whole during the millions of years of tertiary time. * * * The only important conclusion we are at present justified in drawing is that the ants are a very old group of insects which long ago attained their present stage of evolution, and have since been marking time or changing very slowly and imperceptibly. Probably the same was true of the ants of the periods antedating the tertiary."

Sixth, the whole invertebrate world must be omitted.

There is practically no record at all of invertebrate early life, since such beings were without bones or hard parts, and therefore no fossils remain. Prof. Romer, in his article on The Evolution of the Vertebrates, (The Nature of the World and of Man, p. 304), says:

"In the treatment of animals, other than vertebrates, the evolutionary story is mainly based on evidence obtained from living creatures, since the greater part of the evolution of these forms seems to have taken place before the fossil record becomes at all clear."

On this point also we will furnish much evidence in another place.

It will be observed that practically the whole discussion of the supposed conditions prior to the fossil record of the vertebrates, as to which there is any pertinent evidence of evolution, deals with conditions in animal life *prevailing now*, which must assume that conditions in that remote age were similar. But this is the very point the proponents are themselves controverting.

Seventh, by a like test, the birds must be

omitted. There is a theory (held by many evolutionists) that the birds were, at some remote time, and through some unascertained group, developed from reptiles, and for that reason they are by some designated as "advanced reptiles," "glorified reptiles," etc.; but manifestly that cannot be true as to present birds, because the development from reptiles must have occurred at least three million years ago; (Dr. Osborn and others have taught us that it could not have occurred since). During that great period if birds were within the human line of descent there would have been evidence that they were developing into human beings, or at least into animals on their way to become human. No such instance has been found, nor even has that fact been asserted, unless by way of argument, so far as the writer can discover. If the birds have not advanced toward humanity in three million years, a theory which contemplates such development in some prior period is too remote and speculative to command our confidence. That the elimination here suggested is not remote or fanciful appears from the assertion of Mr. Darwin himself. He is not always consistent on this point, but in "Descent of Man," p. 244, he says,—accepting the authority of another:

"We have good reason to believe that no true bird or reptile intervenes in the direct line of descent."

No kingdom of nature, then, can come within the scope of the evolution theory, as applied to man, unless it be the animal; and we know of no contention that any specific animal, or any other

than the hypothetical common stock, was ever in the human line of descent, or definitely related to it, at least until we reach the anthropoids. And now Dr. Osborn, as has been seen above, denies that man links up with anthropoids anywhere.

If *any one* of the foregoing exceptions is proved, there is, the author thinks, nothing left of the hypothesis of universal *unity*, which is at the bottom of the evolution theory. Two units instead of one would raise the question of choice, and how it came about; and this would be harder to explain than one for each species.

Yet, though this writer is unable to see why the foregoing varieties of beings, widely distinct, can have a place in the human line of descent, even on the assertions of the proponents of the theory, its scope is so broadly stated in much of the literature that we cannot suppose these eliminations will be conceded; and as it is our function to examine every serious argument, and inquire whether it is tenable, we will, for our present purpose, disregard all exclusions except inorganic matter, and start again with the statement that the theory of development follows one or the other of the two categories mentioned above, both of which cannot be true. To state them concisely we must inquire *first*, whether the evidence proves that all living things emerged from a cell or cells qualified to produce them all; and second, whether the theory of human evolution can be maintained if each order in nature has its own line of descent, or comes from a distinct cell, which can produce no other. This is

no trifling distinction. Beginning at this point we proceed to distinguish these two phases, and to clarify them so that their elements and results may be seen.

The First Phase: (without predetermined outcome).

This is the more generally asserted; (Osborn, Origin and Evolution of Life, Preface, p. x):

"Our present state of opinion is this: We know to some extent how plants and animals and man evolve. We know, for example, that there has existed a more or less complete chain of beings from monad to man."

In a recent work (1927) Prof. Edwin Grant Conklin of Princeton, (The Direction of Human Evolution, p. 4) says:

"Man then in his entirety is regarded by science as the product of evolution. His actual origin goes back not to Adam and Eve and the Garden of Eden * * but to more primitive races of men, and then to prehuman ancestors, and in the end to the earliest forms of life upon the earth. Between us and these earliest forms there has been an unbroken line of descent, an uninterrupted stream of life, through all the ages."

Kellogg, Evolution, p. 6:

"Evolution means continuity; means transmutation; the origin of the new from the old; means change, continuous movement, gradatory development. It means genetic relationship, blood cousinhood, an all embracing genealogy of life. It means the fundamental unity of all life, however varied."

p. 221.

"The evidence for the evolution of man is gained, just as is the evidence for the evolution of the plants and other animals, from the study of his anatomy, physiology, embryology, palaeontology, and geographical distribution.

"From all these sources there are impressive testimonies to man's oneness with all other life, to his origin by evolutionary processes from lower life forms."

Simpson, (on p. 40),—"Man and the Attainment of Immortality,"—

"As a general statement it may be said that the results of embryology indicate the ascent of man from an initial unicellular stage, through invertebrate phases, and later stages, characterized by features that are now permanently associated with certain of the lower groups, until a form is reached difficult to distinguish from the corresponding form in the anthropoid apes, which finally slowly develops into the distinctively human individual.

Prof. Ernest W. MacBride of London (Creation by Evolution, p. 61), who may not be speaking of an original unit, says:

"Every animal begins its development in the egg, which is a single cell, comparable in structure to the lowest forms of life known to us, and as it grows to adult form it sketches in broad outlines the whole story of its evolution."

Dr. Julian S. Huxley (Creation by Evolution, p. 233) says:

"Starting from the single-celled type, life made its first great advance through the aggregation of many single cells into a colony; * * * Next came the organization of the community of cells into a two-layered creature;"

Here are omitted several stages not required for our point, which is that the evolution theory requires a continuous series of changes, from amoeba to man. The author proceeds:—

"Finally in man comes the new step in brain power which we call reason."

And Mr. Darwin says,—after referring to the first edition of his "Descent of Man,"—

"This implies that man must be included with other organic beings in any general conclusions respecting his manner of appearance on this earth."

Seeking to comprehend this *first* phase of the question, so understood, we find at the outset a serious question of fact. It demands a practicable continuity from the primordial cell through many other orders, across kingdom after kingdom, to its climax in man. If there are breaks or gaps over which there *can be* no upward communication, then even if there be progressions anywhere which call for explanation, they must be within limited fields, or confined to distinct kingdoms or orders of life, and cannot apply to man. If a human being *cannot*, in his progress upward from an original cell, cross kingdom boundaries, then he did not, and no argument for this phase of the evolution theory can prevail. This ought to be answered, and not ignored; but the writer has found no record of an inorganic element developing, of its own force, into an organism, nor of a plant becoming an animal; nor any indication that other kingdom boundaries were ever crossed on the way upward. If there are such, they should be clear enough to convince the experts themselves; but as will be seen below they are not agreed on any instance; and hence the rule of prudence, so reasonable that it can hardly be controverted, may properly be applied, to the effect that where the experts disagree the assertion must be regarded as not proved.

Professor Drummond avers, in the language quoted above, that elements in a lower kingdom pass over into a higher one only by the action of organisms belonging to the higher; as (by Huxley's illustration, p. 44) when a horse, in the animal kingdom, eats grass; or where the plant, from a position in its higher level, absorbs and utilizes minerals from the kingdom below.

If there are veritable instances to show that these gaps do not exist, or that, even in exceptional cases, they have been crossed from below, it ought to so appear. These would show that man *might*, in course of development, have passed through all these stages, and to that extent remove an obstacle, though still leaving open the question whether he did. It is customary however to ignore the gaps across the path of progress, and even the question whether they exist; or at most to cover the point, without definition, by general statements, not proved. Dealing with the *first* phase of the theory, this question is vital, and will justify further consideration here. Mr. Huxley was aware of its significance, and of the necessity of meeting it. He asserted, in general terms, the existence of evidence to "demonstrate the futility of any attempt to separate the highest plants from the lowest animals," but even in that connection he not only mentioned no proven instance, but added vaguely that these two kingdoms of living nature have a common borderland which *belongs to both or to neither*, (Darwiniana, p. 236). This can only mean that they co-exist in that common territory,

and neither yields, or that there is an unrecognizable gap; and which is true Mr. Huxley was unable to say. As to plants we have shown by Prof. Kellogg that he, at least, is convinced that there never was such an advance. Mr. Huxley's only instance of crossing kingdom boundaries relates to the dividing line between reptiles and birds. This, the writer believes, is not pertinent, because Mr. Huxley's view was that the reptiles and birds belonged to the same kingdom. Still less convincing is the theory on this point if Mr. Darwin is right in asserting, (page 40), that neither bird nor reptile are within man's line of descent. Therefore, even if that instance were verified no kingdom boundaries would be crossed. This instance was, as he said, "an animal which, in its feathers and the greater part of its organization, is a veritable bird, while in other parts it is distinctly reptilian." Huxley called it Archaeopterix. But his assertion does not command the support of other scientists. Dr. Osborn says, (Origin and Evolution of Life, p. 229), that Archaeopterix was a bird, and illustrates it by a drawing which cannot be mistaken. Dr. Osborn believes however that there was somewhere in antiquity a transmutation from reptile to bird, but states it so vaguely that neither the fact, as he conceives it, nor the occasion, are clear. He says, "It is supposed that it must have occurred in Permian times." As to what this means in time is hard to ascertain, but by Osborn's tables, (Origin and Evolution of Life), it is plain he means to place it

nearly 20,000,000 years ago; and this fairly implies that both the fact and the time are unproven.

As to the right of the instance we are considering to be regarded as proving anything whatever, we note further that Dr. Hans Frederick Gadow, lecturer on Geology, Cambridge University, in Encyclopædia Britannica (11th Ed.), though sympathetic with the theory of transmutation, is not convinced about Huxley's instance. He says:

"Archaeopterix was, after all, a bird, although still somewhat primitive, and the question what rank of reptiles has given rise to the bird is still unanswered."

Since therefore the contention as to the development of the birds from the reptiles is not proved to the satisfaction of the scientists, or at least since it has not progressed beyond the hypothesis, and is not supported by proof, it is not to be expected that laymen will stake important conclusions upon it. Exceptional types, "sports" or "accidents" or freaks of nature, which now and then occurred, prove nothing on this point. The six-toed man, so often mentioned by Mr. Huxley as evidence of the effect of inbreeding, was followed by at least two other generations of the same kind, but is not even mentioned as a step in development. Even yet the race has only five.

Eccentric forms are occasional, and there are variations within the several kingdoms as there are in humanity, but if there were advances from a lower kingdom into a higher doubtless the patient and persevering care which proved the variations among pigeons or among flowers would have

found them, or perhaps by careful inbreeding have brought them about. The wonderful varieties which Burbank produced suggest that if a plant ever had, or could, either automatically or by guidance, become a bird or a beast, he would, in his long years of labor, have discovered it.

Dr. Osborn, asserting his belief that birds early emerged from reptiles, searches for proof in the mists of remote antiquity, even to Permian times, twenty million years ago or more. Of course a scientist may justify going back as far in time as evidence may be found; but there seems to be a simpler test. Evolution is said to be still at work, at least in the kingdoms below man. The Neanderthal age, in which nearly every paleontological fact of any significance relied on is found, only ceased when the Cro-Magnon came, and thus is comparatively recent. If the facts are not wholly in the past, and therefore forever done with, there are living individuals now, in all stages of development, and the theory can be supported any day by overwhelming evidence. Such instances would be easier tested, and more convincing.

Some have said, by way of answer, that the process of change is slow, and it cannot be expected that the observation of individuals could detect it, but this does not meet the point. Whatever its origin was, it must be true that since individuals began to grow and change at different times they or their successors could be found at any moment in different stages. They have already

had for advancement the immense stretches of time with which scientists love to deal, and even those who did not see them start could recognize the different stages now, in living persons or skeletal remains.

Mr. Darwin found this a disturbing factor, and frankly said so. He was unable to show by instances the stages, or any stage, of such transition, but devoted several pages, (2d Ed. p. 242), to showing that the absence of instances is no proof that they did not once exist. Considering however that the theory of evolution is an *affirmation*, and not a defense, the present writer deems this inadequate; but the merits of that question are not involved at this point.

In addition to the foregoing, there is admittedly a *total lack* of evidence that the invertebrates ever merged into vertebrates. Prof. Lull says, (Creative Evolution, p. 258):

"Except for a persistent type of being known as Amphioxus or Branchiostoma, which to this day inhabits the shallow waters bordering the continents, there is no trace of the important link connecting the vertebrates with their invertebrate forbears."

And Prof. Wm. King Gregory (same volume, p. 272) says:

"There is as yet no general agreement as to which group of invertebrates gave rise to the vertebrates."

In a more detailed discussion in Part II of this book it will be shown how barren the record is of evidence that any kingdom boundaries of nature were ever crossed. At this point, however, we are mentioning only those instances in which the

evidence is either expressly adverse to that contention, or the total absence of conforming instances is admitted. In this list we have, then, the following already defined cases: Reptiles, birds, plants, ants, all classified by their respective groupings; also a clear break, covering an immense period, with no discovered connection at all, between the invertebrates, as a class, and the vertebrates, which include mankind.

Still more serious difficulties arise if man, whose origin is under investigation, must be considered as a being somehow endowed with mental and spiritual powers and faculties denied to other beings; for either in the original cell, or at some stage of its progress, the developing being must have been or become endowed with these capacities also; but when, or where, or how, or why? If, as supposed under our *first* phase, the outcome of a cell is not predetermined, nor predictable, nor in a fixed order, that supposed line of human descent must be rejected as hit or miss, for since the course of progression operates at varying speeds, these high qualities, awaiting their appropriate time for appearance, might attach themselves by mistake to a being on the way to become a dog, or an ox, or a serpent, or even an ape, and thus join the procession at the wrong place. Stated in another form those qualities, not being in any manner effective at the beginning, must, to become human, and nothing else, at some definite stage find themselves in a favorable atmosphere, or in suitable conditions, and, moved by inherent impulse or by an

extraneous force, unite with the developing form. This is inevitable if the theory is sound, though, being only pictorial, it cannot aid in explaining *how* or *when* the mind and spirit began, or why their immense benefits are found in humanity only. If in the amœba is contained also a potentiality for the mental, moral and spiritual qualities which pertain to man alone, it is almost inconceivable that in the course of descent they should find their way, without error, to and into him alone, not even diverted into either of his companions in the primate class. Yet this must be supposed, if we are to deny any new cause. It results that if our first alternative be at all conceivable then Newton's dog Diamond, instead of Newton, might be found to be the heir to all those riches, and man, being skipped or overlooked, might remain as dull and animal as his supposed cousin the ape. A theory which is so incapable of certitude, and which has no sure fact to stand on, ought not to be acceptable to a scholar whose slogan is that of Dr. Jordan,—"Science is verified knowledge." It is not supposed by the ablest thinkers that such conditions are possible, and yet many writers, in stating the evolution hypothesis, use language which will bear no other interpretation.

Condensed, our *first phase* of the theory is this:

Only the first stage,—amoeba,—is known, and no later one can be anticipated or predicted. In the outcome enough distinctive lines of descent must emerge, and have emerged, in recognizable form, to constitute our present world of three

quarters of a million species, all unlike, and most of them sharply outlined. If a very wise scientist had been looking on while these lines boiled, shifted and changed to produce that result, each change would have been a fresh surprise, for none was either controllable or predictable. Boundary lines between families, orders, types or species, were necessarily disregarded.

This is no invention of the present writer. It fairly represents the manner in which that phase of the theory of development works out, as it is described by its proponents.

Unless the writer has missed something significant he can only conclude that there is no sufficient basis, even on the proponents' showing, for the contention that continuous progress from amoeba to man, *through other orders of life*, is or ever was possible. If not, then the *first* of the two phases of the theory of human evolution is not tenable. It is remarkable that the characteristics of this phase, and those of the phase next to be described, though inconsistent in certain essential features, are, in the writings of the proponents of evolution, woven together in a fashion which does not admit of segregation except by the rule of thumb. Yet no one, as far as this writer has observed, has ever mentioned their inconsistency,—much less endeavored to correct or explain it.

The Second Phase;(with predetermined outcome).

This seems the better reasoned theory. It does not trace human life through a series of lives not

necessarily terminating in man. It is like the *first* in insisting upon unity of origin; but unlike the *first* it contemplates distinct lines of descent, radiating from the original amoeba, each on the way to a specific outcome, and powerless to change. As we shall show in our fuller discussion of that subject in Chapter VI, the vital feature of evolution, in both of our *phases* of the theory, is the *fundamental unity of life*, which means a single source, from which by natural means all our varied species have developed to their present condition; but in the mode of attaining that condition they widely differ. That this difference is radical and vital is well shown by Dr. Vernon Kellogg, author of "Evolution." In the article on Evolution in Americana Encyclopedia, written by him, he says:

"As the character of the original small germinal variations necessarily first determines the possible lines along which species change and descent proceeds; and since it is evident from careful study, * * that descent has actually proceeded along certain distinct lines and has not been scattered miscellaneously and futilely in all directions, it is plain," etc. . .

This fact, and its basis, is also affirmed by other experts, quoted elsewhere.

The progress of development pursuant to our *second* phase of the theory is explained by very able scientists, from whom we quote:

"Bioplasm," by Lionel S. Beale, (pp. 18–19):

"There is indeed a period in the development of every tissue and every living thing known to us when there are actually no structural peculiarities whatever—when the whole organism consists of transparent structureless

semi-fluid bioplasm—when it would not be possible to distinguish the growing moving matter which was to evolve the oak from that which was the germ of a vertebrate animal. Nor can any difference be discovered between the bioplasm matter of the lowest epithelial scale of man's organism and that from which the nerve cells of his brain are to be evolved. Neither by studying bioplasm under the microscope nor by any kind of physical or chemical investigation known can we form any notion of the nature of the substance which is to be formed by the bioplasm or what will be the ordinary results of the living bioplasm." (See Drummond's Natural Law in the Spiritual World, p. 289.)

Drummond comments on this as follows:

"What then determines the difference between different animals? What makes one little speck of protoplasm grow into Newton's dog Diamond, and another, exactly the same, into Newton himself? It is a mysterious something which has entered into this protoplasm. No eye can see it. No science can define it. There is a different something for Newton's dog and a different something for Newton." (Natural Law in the Spiritual World, p. 289.)

Drummond, as we observe, assumes that there is a *different* cell of origin for each line; but this would not be unity of source.

He quotes from Huxley, Lay Sermons, 6th ed., p. 201, where, watching under the microscope a cell of protoplasm change its form, he says:

"Strange possibilities lie dormant in that semi-fluid globule. Let a moderate supply of warmth reach its watery cradle and the plastic matter undergoes changes so rapid and yet so steady and so purpose-like in their succession that one can only compare them to those operated by a skilled modeller upon a formless lump of clay."

And, after quoting this passage, Drummond draws his conclusion thus:

"One artist makes all the dogs, another makes all the birds, a third makes all the men." (Ibid., p. 291.)

"Moreover each artist confines himself exclusively to working out his own plan." (Ibid., p. 291.)

"The artist who operates upon matter in this subtle way and carries out this law, is Life. . . . There is the Life, or the artist or the potter who segments the worm, the potter who forms the dog, the potter who moulds the man." (Ibid., p. 292.)

Mr. Huxley was himself also of this opinion. He said so, not only in the passage quoted, but elsewhere with equal distinctness. Although he was, in using the language we quote below, presenting a pictorial, and perhaps semi-humorous, view by way of illustration of the process of development, we are justified in construing his language in a serious aspect where he purports to state a fact. He says (Darwiniana, p. 5):

"Man in his development was for a little while parallel with, though never passing through, the form of the meanest worm, then travels for a space beside the fish, then journeys along with the bird and the reptile for his fellow travelers; and only at last, after a brief companionship with the highest of the four-footed and four-handed world, rises into the dignity of pure manhood."

We quote again from Drummond in respect to this. He says:

"What goes on in the animal kingdom is this: The bird-life begins upon the bird-germ, and builds it into a bird, an image of itself. The reptile-life seizes upon another germinal speck, assimilates surrounding matter, and fashions it into a reptile,"

and, quoting from Darwin, dealing with the law called Unity of Type, he says, (p. 292):

"According to this law every living thing that comes into the world is compelled to stamp upon its offspring the image of itself."

This implies a vital something, a feature of the life principle, independent of the amoeba germ, which in some matter acts upon it to project *in specific directions*, determined in advance, the processes of development.

Here arises the most serious difficulty with the evolution theory. Since the whole problem on which scientists might hope to find confirmatory evidence is to explain, by natural means, how these seven hundred and fifty thousand species, (of which man is said to be one), came about, it would be normal to suppose that each family, order, type or species,—differing among themselves, but only in degree and not in character,—descended from a parent or parents *of a like order*. This would admit of evolution within those bounds, and would apparently meet most of the requirements of that theory if it were not supplemented, or "loaded", with the assertion that *all arose from one*. Dr. John M. Coulter, now deceased, formerly Professor of Botany in the University of Chicago, wrote his book in defense of evolution,—"Where Evolution and Religion Meet,"—seeking to make a case for the theory, but he limited his discussion to the development of living beings within the bounds of their family or order, and did not so much as mention, as an important element, the unit theory of origin. Many other authors, though asserting more, stop with their proof at that point. It is so

of Prof. Loomis on the horse and the elephant; Prof. Shipley on the bee, and many others, as will be seen. It is this "load", which the theory as now propounded must carry, which raises its most serious difficulties and doubts; and it is chiefly this which is the subject of our present "inquiry."

The leading authors supporting the evolution theory as to man, which is the only object of our present quest, overlook or disregard the distinction between the two phases mentioned above, although it is very wide and very deep. They usually assert, even as Dr. Kellogg has in our quotation from him on page 52, (compare with quotation from him on p. 63), those features which harmonize only with the *first* phase, but in the same connection describe the definiteness, orderliness and law controlled quality of the original cell, and its progressive advances, in terms which can only apply to the *second*. They do not look favorably, as Dr. Kellogg does not, on a theory which affirms a heterogeneous cell, incapable of anticipation or prediction, and therefore with no positive or definite outcome. The writer regards this as the purport of Professor Newman's discussion of the subject (1926) in "Nature of the World and of Man," p. 398. That book was recently issued by sixteen members of the faculty of Chicago University. While its articles are on distinct subjects, contributed severally, it is said in the introduction that the substance was considered by the entire group, at many conferences, and may therefore be safely regarded as concurred in generally.

"The orthodox modern view of the constitution of the germ plasm—a view based on an immense mass of consistent data—is that it is composed of large numbers of discrete packets of different chemical substances, probably proteins; that these packets are bound together in chains, each chain a separate chromosome; that there are probably several thousand of different kinds of packets, and that these have a definite, fixed, orderly linear arrangement. . . . This seems to promote a particular specific series of reactions whose end results in an organism with characteristics as specific as was the original complex laboratory of chemical materials."

Professor Newman also says, in Gist of Evolution, p. 102:

"Strangely enough, we know precious little about the actual causes of individual development. Just what is the motive power that makes all (cells) grow and divide; just what makes one kind of a cell develop into an individual of one species, and another kind of cell, very like the first, into an individual of another species?

"*Each fertilized egg cell is a unique individual, with certain determined potentialities.*"

It is true that the foregoing, in its connection, relates to the origin of individuals in the history of a race, but it seems manifest that it states the author's judgment of the capacity and definiteness of the supposed cell in which the race begins.

By our *second* phase of the theory that cell of protoplasm which emerges into man must contain the same variety, or capacity for variety, *and no more*, than is found in human life, as it ultimately comes to be. It seems plain that, since its outcome is predetermined and inevitable, there is no room for substantial variance or departure from type, even within the period of development; and it

results that the only variation possible in the outcome is as to the *kind* of man to be produced. Even this outcome cannot be in doubt unless the predetermination, so fixed in respect to the genus, gives way to accident or uncertainty in respect to the individual. This is equally true even though all life originated in a single cell, if, as this phase of the question assumes, each chain or line of descent leads definitely to a specific outcome, *and cannot be diverted.*

It results that the only significant controversy raised by this *second* phase of the theory is as to the *time required* for human creation,—i. e. was it immediate, when the first cell was touched with life, or protracted, occurring a little at a time, over a prolonged period. The proponent of special creation would, on that question, have this much in his favor, that the intelligence and power which could instantly create man would stand out with equal clearness if the like capacity were wrapped up in a cell of protoplasm, though ever so long in developing, *if predetermined as to its outcome.* This is the doctrine of potential creation advocated by Dr. Lull. Still more is this true if in the original cell there lay imbedded those high mental and moral qualities which in the outcome distinguish man from the beasts. The reflection cannot be avoided that if those unique qualities might have inhered in *any* original cell, or were appropriate for any except man; or if there were but one original cell, having this potentiality with others, no mere mechanical process of evolution, without

the intelligence attributed to divinity, could have limited them to one selected being, or to one family or order of beings, out of the multitude originating in the same manner.

To this point the discussion stands thus: the *first* phase of the theory requires evidence that man in his development has disregarded and crossed all intervening kingdom boundaries; but this is not tenable, when read in connection with the explanations and definitions which accompany it. Under the *second* phase, though it also adopts the hypothesis of unit origin, each type has a definite outcome prescribed for it in advance, and from this it cannot diverge. Aside from the fact that all lines must radiate from a common starting point, —which has its own difficulties,—the descent of each line, being fixed and inevitable, does not differ much from special creation. The bearing of this proposition is more fully developed in another place, in examining the argument from the course of the embryo, and in comparing the "rival" theories. Therefore, the evolution theory, under both *phases*, centers in the affirmation by its proponents of the verity of the doctrine of unit origin; and this becomes practically the only significant issue.

It must be plain that both these phases tender to the reader,—indeed urge on him,—a substitute for the theory of special creation, which has so long prevailed, and which by many writers is described as "the only rival theory." A reasonably full comparison of these will be found in Chap. V of Part II, on "Two Rival Theories of Life." It seems

important here to present an intelligible though condensed statement of what special creation is; looking toward the comparison to be made later. Both in their details relate to nature generally, and therefore belong in Part II of this book; but a brief and summary comparison of the two is necessary to get a clear apprehension of what is implied in the evolution theory; and this is the theme of our next chapter.

CHAPTER IV

The True Issue

This chapter is an effort to briefly outline the true theory of evolution, and also to present a condensed summary of special creation, partly to correct evident misapprehensions of the latter theory, and partly to place them side by side, so that a just comparison may be made between them.

CHAPTER IV

The True Issue

Much confusion would be avoided if the word "evolution," which to most readers is the sole descriptive term, always meant the same thing. It does not, even among the scientists. With some it is merely descriptive of certain processes of life which nobody denies. With some it means origin, and the subsequent processes of development are incidental. This is the meaning which most casual readers attach to it. With some scientists it means both. Of course, when thus differently construed, there is misunderstanding, not only logical but personal, and this results in bitterness. Some of the sharp criticisms of Mr. Bryan evidently arose from differences in terminology. Examples will be observed in the numerous definitions we quote, *in loco*, sometimes singly; often in groups. Unless otherwise stated the term is to be used in this discussion as including both *origin* and *progress*. Thus it may be apprehended as including the doctrine of "the fundamental verity of life," and as being definitely opposed to the theory of special creation; and thus it projects man as beginning, with all other forms of life, in a common cell, from which in course of development they are all said to have emerged. When on any point this theory is in our discussion questioned or doubted

it is to be taken in this essential meaning. It is not to be supposed that variation in form, size or color during the processes of growth are denied by the present writer.

As applied to man, then, this writer takes evolution to mean a practically continuous and orderly advance from an original cell to the present complex individual. This would be, under our *second* phase, specific, and free from obstruction. Under our *first* phase obstructions would be often encountered, and they must be dealt with as they arise. If the theory means less than this it is not worth arguing.

Such is Prof. C. Lloyd Morgan's definition, (Creation by Evolution, p. 343):

> "What, from our point of view, is essential to the idea of evolution is upward passage by progressive steps, along definite, recognizable lines of advance, with continuity of progress from lower to higher."

Many other statements of like purport will be quoted below. This language implies the doctrine of unit origin, though it does not mention it. Those therefore who are inclined to accept the theory of evolution should at least be awake to what it means; and of course those supporting it ought not to misunderstand their adversaries. But because they do, and often have, it seems wise to outline here also the theory of special creation as this writer understands it. Evolution is abstractly a mere search for truth, and not necessarily controversial; yet nearly every proponent presents it as an alternative to the doctrine of special

creation, so long held. This is a feature we cannot ignore. A serious error in apprehension on this point is so common that "a true issue" cannot even be stated, much less discussed, without correcting it.

A layman's understanding of special creation.

We postpone for the present the specific theme of the origin of man. He, by the narrative of Genesis, was separately brought into being, apparently long after the other living things, and when the world was filled with beings of the other orders. By that narrative the earth was ready, "but there was not a man to till it"; and varied life was there, but it had not been named or classified; "whatever Adam called every living creature that was the name thereof." We shall then first outline the story of the earliest to arrive, *i.e.* living nature generally. It is this which the scientific authors find it hardest to apprehend, and which is so erroneously stated. It is quite appropriate here, although our principal theme is man, because by the scientists generally, in stating their theory, humanity is not classified except as an item in a genus or order of living beings.

It is of course important, both to the scientist in dealing with the subject, and to those desiring to examine his argument, that he should correctly view and state the opposing argument and its basis. This is the lawyer's primary tenet, and the scientists will admit its soundness. The evident misapprehension of the adverse view by the scien-

tist is his own fault. One might reasonably expect him to go to the front door to inquire whether the family are at home. Strange to say he does not, but the arguments he most frequently sets himself to overcome are rumors, apparently heard over the back fence. He is aware of course that the theory of special creation is found in Genesis. Why then does he not read it? In Creation by Evolution there are twenty four articles, written by able and distinguished scientists, and a large percentage interweave into their discussions a statement of the supposed adverse theory, often unbelievably remote from the truth; and strange to say, although the error could so easily be corrected, they take their own perversion of it quite seriously, and some discuss it with an artificial patience which would be funny if the issue were minor. Some of the discussions read like sermons to children, and some do not escape the contemptuous tone. A few illustrations will prove this:

Prof. Herbert Spencer Jennings in Creation by Evolution, page 32 says:

"Remember that there are two opposite doctrines. One holds that the constitution of organisms is permanent; that they are created as they are and do not change."

Prof. David M. S. Watson, of London University, says, (p. 242 of the same book):

"The alternative theory to that of evolution,—the theory of special creation,—assumes that each kind of animal was created in the form in which we now see it."

Prof. Wm. M. Wheeler, (Harvard) on p. 211, says:

"The resemblances and the differences between the kinds of animals and plants might be accounted for in two ways; either these several kinds were created independently, simultaneously or successively, or they were derived by natural descent," etc. "The first explanation is supernatural and non-genetic;" etc.

Prof. Wm. Berryman Scott, Princeton, (Creation by Evolution, p. 81) says:

"Two alternative views concerning the origin of new forms of life, animal or vegetable, have been presented. One, the older view, which generally prevailed until the publication of Darwin's Origin of Species in 1859, was that each kind of animal and plant had been separately created, and was, within certain narrow limits, unchangeable and immutable."

Sir Arthur Smith Woodward, (Ibid. p. 125) says:

"If all animals and man came into existence at one and the same time in their present forms science might find the meaning of the world of life beyond its ken."

It would be futile to deny that there have been strict constructionists in the past among the supporters of the theory of special creation, and some remain, who have themselves misjudged the Genesis story. No one could well object to a scientist going back to that point of time if it pleases him to do so to add his shovelful to the dust of ancient conflict, or to shout his paean of victory over a contention which, if he only knew it, has been dead and buried a century or two; but by this only trouble is gained, and nothing worth while is settled.

Both Dr. Jordan and Dr. Lull quote the language of a supposed eminent student of the dim

past, who affirmed that "Man was created by the Trinity on the 26th of October 4004, B. C. at 9 o'clock in the morning." They are not even certain who said it. Dr. Jordan attributes it to Archbishop Ussher, and Prof. Lull to Dr. John Lightfoot. Evidently neither has heard that there is a difference between the origin of man and other living things as stated in Genesis, for they treat them as arising at the same time, and in the same way; nor have they apparently heard that those champions of special creation who once thought so, if any there were, have long ago acquired clearer light. The critics would get farther with the argument if they would dust off the old book for themselves, and look at the first two chapters of Genesis.

It is not in Genesis asserted,—(even in the special narrative relating to man),—that living things were instantaneously created in their final form, nor without a due period of growth; nor that those of the same type or family were created alike, nor rigid, nor incapable of variation. On the contrary that narrative asserts that, with the exception of man, whose portrait is on a different page, they were not created at all, but only *ordained*. The divine fiat leaves room for undetermined time for the processes of growth.

"*Let the earth bring forth* grass, the herb yielding seed, and the fruit tree, yielding fruit *after its kind*."

After an intervening period, described in the English translation as a day, but now uniformly

understood to be a period of indefinite extent, another command is mentioned:

"*Let the water bring forth* abundantly the moving creature that hath life, and the fowls that fly above the earth." And after another such period:

"Let the earth bring forth the living creature *after his kind*, cattle and creeping things, and beasts of the earth *after his kind*."

"And it was so."

Is this instantaneous, or rigid, or static, or unchangeable? Is it not, on the contrary, quite scientific, at least in its method, judged by accepted modern tests?

Passing for the moment the question of unit origin, it is apparent that even if the teeming world of living things which came out of the earth and the sea took their first start from protoplasm, as science insists, the divine fiat mentioned here is not in conflict. Protoplasm is still with us, and the adult is always a climax. It may well be supposed that the first individuals began, as under evolution the unit cell began, with the descent of life from a source unknown to science, and progressed to maturity as like individuals do at present. Nothing is said in Genesis to the contrary. No method is mentioned. In *some* order, and in some succession they arrived,—systematic we have a right to suppose, under both theories. There is in the language quoted no assertion that individuals

were specially created in mature form, nor at what stage each began, nor how long it was progressing toward maturity.

It seems appropriate here to also suggest a construction of the language of Genesis in relation to the origin of man, giving it an interpretation which to the writer appears to be its natural meaning, although the evolutionist writers have overlooked it. The language differs from that relating to the other forms of life, but the meaning frequently given it seems to this writer artificial.

"And God made man of the dust of the earth."

If this means that *by some method*, and in *some period of time*, (not specified), man was created out of existing materials, the controversial questions would seem to be who did it, and how long it took. Plainly it need not mean the moulding, by hand, of the mature man, with no infancy or youth. Cain and Abel were also made of the dust of the earth, and returned to dust at death. Every man is said, in common parlance, to be "created," and yet none are moulded, nor do they begin life mature. Simple chemistry indicates that the *materials* are the same, whether man developed or was created. The difference, at most, is only in *method*. Is not the language of Genesis consistent with *both*, differing only, if it differs at all, in the stage at which Life first enters the inorganic material?

If Genesis had been originally written in English it must still be construed, as all other significant documents are. Magna Charta, the

Declaration of Independence, and the United States Constitution, though all were carefully framed by highly competent persons, have been under construction ever since, to learn their true intent. This writer ventures no construction, and need not. It is enough for his purpose to show that the construction given by the evolutionist,—which indeed is, on this point, the essence of his argument,—may be wrong. The writer of Genesis could not have intended to say that the divine originator of the laws and processes of nature, who made them to be uniform and inevitable, departed from them in his most important work; and that too for only a single instance. Cain and Abel, the next in succession, were normally born. And why should the creator hurry? Time is nothing to an immortal, and all his other works were deliberate and progressive. For example if it be said that God created the Grand Canyon, it would not necessarily be implied that the great rocks were rent apart in a spasm of energy, nor even that he moulded it with his own hands. The *causal* introduction of a swift river, which scoured out and cut into and wore down that chasm into its present condition would answer the condensed language used in the narrative. In harmony with this was, as we have seen, the introduction to the world of the other forms of life.

All living things (except man) originated, we are there taught, *according to species*, when—responding to the divine fiat—the earth and the sea "brought forth" those earliest ancestors, "after

their kind." It is not to be supposed, this writer thinks, from the language there used, that life was brought forth in adult stages, or in rigid forms, or all at the same time. For example that language does not require that an apple tree should arise out of nothing, in full branch and leaf, and loaded with fruit. The apple seed, containing the apple life in its own original cell, and opening in due course and time into its later stages, answers the requirements of that narrative. The apple tree requires now, to reach full maturity and an ample bearing stage, some twenty years. Other trees and other kinds of life have their differing periods of gestation. The command to the earth and sea to bring them forth "after their kind" conforms. The present writer has been surprised to observe that many scientific writers in making comparisons, (which in some form they have nearly all done), between evolution and special creation, although acquainted with the fact of preexistent life, and its due and varied methods of operation, and although acquainted with its processes now, seem to suppose that if it had begun its course as narrated in Genesis it must have been on a plan never followed before or since,—i.e. beginning at the top, with every product complete, rigid, and all at the same time, instead of at the bottom, with the independent individual cell. A fuller comparison of these theories will be found in Part II, where Chapter V, "Two Rival Theories of Life," is devoted to the question. For our present purpose the foregoing will be sufficient. With these

summaries we are better prepared to consider and weigh the *proofs* of evolution as they are tendered by its proponents, and this will be the subject of our next chapter.

CHAPTER V

Indirect or Inferential Proofs

THIS chapter is an examination of the *proofs* tendered in support of the theory of evolution, drawn from sources other than the fossils, (which are to be considered in another place). It is also an effort to weigh the arguments by which the scientists aver that the theory can be inferentially proved.

CHAPTER V

Indirect or Inferential Proofs

The Course of the Human Embryo.

The development of the human embryo is said to represent closely the course supposed to be taken in the slow rise of the human being, from amoeba to man. It is deemed to be essentially a recital of fact, and is therefore frequently called "recapitulation." This is by many relied on confidently, but by others is only deemed pertinent, (see Evolution, Kellogg, p. 53; Where Evolution and Religion Meet, Coulter, p. 16). A few deem it, as an argument, worked too seriously; but its entire irrelevance has nowhere, to the writer's knowledge, been dwelt upon. This last is the view most strongly impressed upon this writer.

To him it seems that the principal facts, and also the inferences around which the theory of recapitulation is woven, are imaginary. The argument turns on the ability to see and recognize the course of development in the embryo, and to compare it with the experience of adult beings of the same type, and also with growing processes of plants, birds, fishes, amphibians, etc. Of course if this comparison cannot be truly made, then the proposition is answered, and the argument must be abandoned. There are several reasons why it is

quite impossible to make or trust such a comparison.

First, Mr. Thomas Huxley explains that no one ever has, or can expect to, make an examination of the human embryo; (Man's Place in Nature,—discussing man's relation to the lower animals—p. 60); and for that reason he himself makes the comparison with the embryo of the dog, which he asserts is sufficiently like that of man. But this begs the question, for no one can tell how these compare without the very examination which he says is impossible.

Second, it is settled doctrine in science that the embryo is never like the adult. This is known as von Baer's law, and is the basis of fact on which that law rests; (Prof. Conklin of Princeton, Creation by Evolution, p. 69). Accordingly the human embryo can only be physically compared with the *embryo* of other animals; and this leads back to pure assumption, for we cannot find out whose experiences the human embryo is recapitulating.

Third, Mr. Huxley says, (*supra*), that the embryo reaches, at a defined stage, a point of differentiation, where that of a puppy differs from that of mankind. This leaves us only the earlier stages for even this comparison. But Prof. Ernest William McBride, an eminent British scientist, tells us that in the earlier stages the human embryo is "blurred out of all recognition;" (Creation by Evolution, page 60); and his suggestion is that it may be eked out by examining the embryo of the tadpole, "or still better, that of the newt."

But this is no better than the puppy, and both are too remote, as subjects of comparison. We cannot suppose the puppy or the newt, being lower in the scale, can be recalling events which could only occur later. If Dr. McBride cannot see the facts as the enthusiastic proponents describe them can a mere layman regard this as a fair criterion?

Prof. William King Gregory, of Columbia University, gives us an example of inductive reasoning on this point, rather astonishing to a mere lawyer, perhaps furnishing a picture of how far the scientific mind can roam in an emergency. He says, (Creation by Evolution, p. 275, 276):—

"Probably half a billion years ago, there were already in existence shark-like fishes that resembled man in possessing the following important structural characters: * * Hence the humble dogfish or shark, * * is universally recognized by biologists as affording a true ground plan of human anatomy and physiology."

If we can infer that the supposed gill clefts in the human embryo have their source, or at least a reproduceable example, in the ancient dogfish, how far does that carry us on the way to prove a supposed unit origin?

But passing these preliminary difficulties, which seem serious enough, and coming to consider the course of the embryo on its merits, as an argument, we note *first* that beyond its own facts, in any instance, it can assert nothing, past or present. The nature of testimony is artificially ascribed to it, but it can be no more than an analogy. It does not profess to recite its own experience, nor even the

actual experience of another. This would involve not only an implication of individual experience not unlike a reincarnation, but would also assert a memory. In the *second* place, giving it the effect of a "recapitulation," if this be conceivable, it can prove nothing, for it does not always follow the same course, or pursue the same order. Prof. Fay-Cooper Cole, in his statement prepared for the Scopes trial, said:

"Different systems of organs develop (in the embryo) at different rates, so that when one system has reached an advanced stage of differentiation another system may be still in the primordial state,"

and so an individual instance, itself following an unpredictable order, and moving, as to particular organs, at variable speeds, can teach us nothing by recapitulation. Departure from normal order or character, or the probability of such departure, are rather an assertion that there is *no* definite or predictable course of development. This is even more clear because it is shown that certain anticipated changes in form are often omitted altogether. Prof. Kellogg (Evolution, p. 62) says:

"Numerous stages of the evolutionary history are dropped out, and various adaptive stages or characters may be interpolated."

Therefore the course of the embryo does not prove, nor tend to prove, development as defined in our *first* phase.

It is also clear that no succession of forms in the developing embryo can possibly contribute anything authoritative on the present subject if every original cell, (or if but one, then if the chain

of descent, on its ordained way), has but one inevitable outcome,—which is our *second* phase; for the cell which would result in a fish or a bird would follow its special course, outlined for it in advance, and could never become a man; and if each order or genus develops from its own cell, or if otherwise it must follow its own predetermined course, then the human being never had a tail or a bill or gills, unless by a mere eccentricity of nature, which could have no meaning. This therefore must be as fanciful as the pictures the eyes seem to catch in the clouds of the sky, or in the blaze of the coal fire.

Furthermore if this argument were otherwise defensible it does not disprove the theory of special creation. So far from supporting belief in a prolonged human development from one stage to another, each with its own characteristic forms, which is the essence of the evolution theory, the embryo argument, if founded in fact, seems to prove the possibility of immediate creation; for by it we have wrought out before our eyes the whole process of development to completion, from original cell to man, all within the human period of gestation,—not exceeding nine months. The like process is completed in other orders of life in much less time,—some vertebrates in a single day, (Dr. Bartelmez, in The Nature of the World and of Man, p. 443). Why then is it incredible that an intelligence, or instinct, or chemical movement,—whatever it may be,—adequate to start those processes and equip them to

continue over the immense periods asserted, and also competent to reproduce them within the brief period of gestation, could expedite them to completion in a still shorter time?

No writer indicates, or suggests any means of knowing, when or how the human *mind* begins to unfold, or even shows the faintest appearance of ever doing so. If therefore the supposed recapitulation accounts for or explains anything it is man only *as an animal;* but that falls hopelessly short of exhibiting the development of man *as he is*.

Therefore the numerous forms inherent from the first in cells of protoplasm on the *one* phase of the development theory, or the fixed lines they must pursue on the *other*, both leave the embryonic argument erroneous in its facts, or partial, omitting the most singular and important of all man's personality; or else it is merely curious. Whatever its course, and even if the supposed resemblances to other kinds of life are more than fanciful, they must have another explanation. But even if pertinent, comparisons would be impossible. If man pursues a definite course from the original cell, as in our *second* phase, whether including or avoiding the birds, fish or reptiles, we would have to know what that course was, and through what stages it came, or to assume such an order, even to be able to *compare* it with the growth of the embryo; but this would be reasoning in a circle; as Mr. Lincoln said, we come out of the same hole we went in at. Even more clearly would such a comparison be futile if the development of the

cell is regarded as unpredictable, as in our *first* phase, for in that case its course is altogether unknown until its climax is reached in man; and if the course of the cell and that of the embryo should coincide at any point it would be accidental. A hit or miss resemblance here and there would not prove, unless to the very credulous, that man had ever been a fish or bird or reptile.

But if we could convince ourselves that anything could be learned by examining the embryo, (even though human), to confirm the theory, we must remember that the human embryo is not accessible for examination. It is a puppy's embryo we are examining,—a puppy of the present day. If we find there gill clefts may we infer that the puppy was once a fish? Is it indeed so supposed? But he is a puppy yet, and shows no signs of advancing to be anything different, except an older dog. We are also assured that the human embryo recapitulates also a mammal; but the puppy is a mammal yet, and it may be that experience which his embryo is recalling. It is said that the embryo indicates that the human being also passes through the bird type. Is this the puppy's recapitulation, or ours? If ours what bird? Why but one? What is there to indicate the long line of changes we are said to pass through to eventuate in our multiplied species? Why does the embryo omit any? In what order do they succeed; and why is it not always the same order? How does the scientist know which part to trust? Was the mammal ever a fish, or the fish a mammal, or either a bird, or a reptile? These

are not foolish questions, unless the theory of recapitulation is itself foolish. If the theory is sound there must be an answer. We have a fair illustration of the confusion in which the mind of the scientist floats when he considers this question in the recent book of Prof. Gregory of Columbia, —"Our face, from fish to man," from which we quote some revealing passages. He asserts in distinct terms that man is in the line of descent from fish, and from reptile, from amphibian, and from mammal. He does not suggest that they were consecutive, nor in what if any order; and this is plainly no oversight. We quote a few passages, showing his conviction that evidence is lacking to connect them with one origin, (p. 92):

"From air-breathing fish to man the *general* course of evolution seems clear enough, at least in its broad outlines. But when we inquire whence came the fish, the evidence while extensive is somewhat ambiguous, and there is reason for sharp differences of opinion."

(p. 84):

"From the imperfect nature of the fossil record we can never expect to recover the infinite number of links in the direct line of ancestry of man, or of any other mammal. The record only affords us successive structural stages that are more or less nearly related to the main line of ascent from fish to man."

(p. 70):

"As yet there is an immense *hiatus* in the paleontological history of man covering at least several million years in the Pliocene epoch."

(p. 60):

"The families of man, apes, monkeys, tarsioids, lemurs and tree shrews are exceedingly rare as fossils except in a

few localities and geologic horizons, and the known remains usually consist chiefly of broken jaws with a few teeth."

(p. 25):

"To make a long story short, the real ancestors of the higher vertebrates were probably neither true dipsoans, nor any of the Devonian lobefinned ganoids, but were the still undiscovered common ancestors of these rather closely related groups living somewhere, perhaps in Lower Devonian or upper Silurian times."

Prof. Gregory's chains, linking man with mammals, monkeys, apes and other creatures, will be quoted in another connection on page 117. Yet he asserts, on page 20, that

"All we need emphasize is that in the face of a shark a man may behold, as in a glass darkly, his own image."

If then the recapitulation of the embryo is analogous to memory, as many say, it has a chaotic collection of experiences to choose from. It is plain, from elucidations elsewhere quoted, that this recapitulation is only in scattered items. Sometimes one thing,—sometimes another,—is omitted, and occasionally features quite out of character are inserted.

It adds to the confusion, and perhaps to the embarrassment of the proponent, if the embryo be deemed to truly recapitulate its past,—from memory,—to recall that we still have with us the fish and the bird and the reptile and the mammal; and no scientist avers that these are on their way to become anything different. If they are it ought to be possible to point out the transition stages.

Therefore the argument from the course of embryonic development does not support the evolutionary hypothesis, but makes its acceptance more difficult. It is neither sound in reason, nor intelligible in form, nor consistent with known fact. The development of a human personality, and the introduction of a new being into the world, is indeed a marvel of marvels, but so also is the growth of a cherry seed into a fruit-bearing tree, or the development of a beautiful, musical, self-conscious bird from its ancestral egg. The wonder attending these processes may well excite our enthusiasm, but it ought not to lead us into untenable theorizing to explain them.

Similarity of Structure.

This is the second of the indirect proofs of the verity of the evolution theory. It is, with most believers in that theory, both scientists and laymen, the principal ground of assurance. Prof. W. C. Curtis, one of the witnesses in the Scopes case, said there of the inferences to be drawn from this comparison:

> "If the evidence indicates that all species have arisen by evolution it is improbable that man,—whose bodily structure and functions are so nearly identical with those of the Mammalia, and particularly with the primates,—arose in a different fashion."

This is also stressed by other writers on the subject. Prof. Kellogg, in his book "Evolution," urges doubters to visit the museums and make their own comparisons between the skeletons of man and anthropoids; and he assumes that this will

carry conviction without further argument. Perhaps the most explicit statement of the supposed weight of this argument has been made by Dr. H. H. Newman, Dean of the College of Sciences, University of Chicago, who said, in a statement of his proposed testimony in the Scopes trial:

"The entire fabric of evolutionary evidence is woven about a single broad assumption,—that fundamental structural resemblance signifies blood relationship; that generally speaking closeness of structural resemblance must be essentially parallel with closeness of kinship. . . . If we cannot rely on this principle we can make no sure progress toward the proof of evolution."

Mr. Darwin, except paleontology, staked the whole case upon such resemblances in his discussion in Descent of Man, pages 36, 229, etc. To the writer this confidence seems remarkable because the chief proponents of the theory now positively assert that, although men and the present apes are almost identical, "bone for bone and muscle for muscle," there is *no* relationship between them except through a supposed common ancestor in the remote past. Prof. Fay-Cooper Cole, as to man's relation to the apes, says:

"Study reveals the fact that man closely resembles certain members of the animal world in every bone and organ of his body. There are differences, but they are differences of degree rather than of kind. Those animals most closely resembling man are the anthropoid apes. . . . *Yet it is evident that man's line of descent is not through any of the anthropoids.*"

Other authorities on this point are quoted elsewhere, and on this at present all seem to be agreed. Such is the explicit statement of Dr. Osborn,

quoted elsewhere, from his most recent book. It is therefore deemed authoritative. But here there is a flat contradiction. Abstractly, it is now said, resemblance proves kinship; and similarity of structure proves unity of origin; but it is added that experience and observation show that this is not reliable; and that to find the human ancestor we must search in other fields, in some of which, regarded as hopeful, the resemblance is slight, if recognizable at all. The scientists are now practically unanimous that the ancestry of man must be traced back to a time when, so far as can now be known, the branches were not even remotely alike. It is not even uniformly believed that the supposed common ancestor bore any resemblance to the present human being. As to this of course there are no means of knowledge, and could not be, because the common ancestor is unascertained, either in time or character; but even if this were known, it would not illuminate the subject, for it is uniformly admitted that individuals develop unequally, both as units and also in their parts, and so man and this ancestor may have been much alike at one time and quite unlike at another. Man is said to resemble the shark, the shrew and the ape, but comparisons between these would not suggest brotherhood. The circumstance of dissimilar development is not uncommon. It is dwelt upon by Dr. Newman in his statement on the Scopes trial, from which we quote:

"Those animals most closely resembling man are the anthropoid apes. A careful study shows that while they

have specialized in their way quite as much as man has in his . . . yet it is evident that man's line of descent is not through any of these anthropoids. It does appear, however, that both have a common precursor, but that the anthropoids must have branched off from the common stock in very remote times."

It is also stated by Dr. Fay-Cooper Cole, as follows:

"Almost every order of animals possesses some primitive members that have doubtless evolved at a slower rate than their relatives, and have on that account retained a larger measure of ancestral traits than have the more typical members of the group."

And, speaking of the embryo, he says (quoted elsewhere):

"Different systems of organs develop at different rates, so that when one system has reached an advanced state of differentiation another system may be still in the primordial state."

It is not to be expected therefore,—or at least it is not essential,—that either man or anthropoids should visibly resemble the common stock, and on the authority of these writers it is unlikely that they do. Prof. Kirtley F. Mather, one of the Scopes witnesses, said that the indications of a common progenitor center in a certain creature having its habitat in Australia, which he says resembled a rat more than a human being. We quote from him where, referring to the period of five-toed and four-toed ancestral horses, he says:

"At that time, too, we find the first record of a primate, that order of mammals to which the zoölogists refer man. This was evidently a small quadruped with toes terminating neither in hoofs nor claws, but with rather horny

nails and with teeth adapted neither for grinding grain like those or a horse nor for tearing flesh like those of a tiger, but like those of a man for eating herbs, fruits, and eggs. But in general appearance this creature resembled a rat much more closely than a monkey, ape, or man."

Dr. MacCurdy, (Human Origins, p. 311), holds a different theory of the common stock. He says:

"Propliopithecus, a fossil ape in . . . Egypt, seems to be the ancestor, not only of the Simmaidae, but Hominidae also."

But this creature also was diminutive. Sir Arthur Keith however is unable to select any specific common ancestor, but says (p. 730):

"All who have made a study of the human body are agreed that we must look for man's origin in an ape-like ancestor,"

yet he himself looks to Australia for a composite of the pertinent types of the past, and he has also expressed himself positively that notwithstanding physical resemblance the ape is *not* that ancestor.

The strongest contention now is that the common ancestor was a shrew,—approximating a mouse or a ground squirrel; but all these conflict with the most specific test of relationship offered as a criterion, for the supposed resemblance to man is disregarded *in toto*.

Dr. Gregory, in his recent book "Our Face, from Fish to Man," stakes the whole case of common ancestry on structural similarity. That book has no other theme; but in his applications he produces some extraordinary results. He argues

that man's facial character is derived from the shark. His language to that point is quoted elsewhere. He thinks, however, that the upper features of the human countenance are derived from the mammal. And in one suggestion (page 75), he combines them:

"There are thousands of good scientific reasons for accepting as a fact the evolution of man from the lower mammals; there is a convincing chain of known forms in the long series from fish to man; and even in civilized man the human face is most obviously related to those of the anthropoids."

On page 161 he finds resemblances to the monkey, and asks:

"Why is it that man agrees with the old world monkeys and anthropoid apes in the numbers and arrangement both of the turbanite scrolls that arise from the median partition," etc., etc.

Just how he reaches the conclusion that man also resembles a fish he does not explain, but he says, —page 20:

"In the face of a shark a man may behold, as in a glass darkly, his own image."

The next stage, logically, would seem to be to compare the shark and the monkey, and draw inferences of brotherhood; but evidently Dr. Gregory deems it wise to stop before his comparisons become palpably absurd. Dr. Wheeler, (as we show elsewhere), in inferring relationship by various tests, draws the line between the bee and the elephant, but evidently Dr. Gregory's digestion is better.

Dr. Osborn now contends that a supposed

"Dawn Man," of whom nothing is known, but whom he thus entitles, was the human ancestor, but dates him back "to geologic periods perhaps ten times older than any of our previous estimates to the close of the nineteenth century"; (Man Rises to Parnassus, p. 84); yet, except for a few rather rambling speculations, (p. 83), he does not furnish us the remotest basis for a description.

Therefore there is no merit in the contention that structural resemblances prove or tend to prove the theory of development; and yet this seems still to be the principal ground of conviction, even to those who in terms disclaim it. Dr. Osborn begins his book Men of the Old Stone Age with a chapter on the anthropoids, with many illustrations, but qualifies it by saying that:

"None of these fossil anthropoids, either of Europe or of Asia can be regarded as ancestral to man."

By common consent, then, even the closest similarity of structure,—almost identity,—between man and the anthropoids, does not prove relationship *by descent;* yet it is said that it does prove *remote* relationship. This is the more remarkable because it conflicts with the kindred argument that the closer the resemblance the closer the affinity.

Dr. Newman says (Gist of Evolution, p. 65):

"The underlying assumption of classification is that degrees of resemblance *run parallel with degrees of kinship.*"

The present writer can find no sound explanation of this result, nor even any at all, unless in the supposition that the investigators have, in the

ecstasy of speculation, completely lost sight of the fact that evidence must be found to support their hypothesis. Their conclusions do not, and the writer thinks cannot, fit any theory of a common ancestor. On the contrary, much of the argument of the experts is devoted to the effort to explain how the resemblances between man and the anthropoids can be so great but mean so little.

It stands out clearly that the only fact to reason from, when considering the relation of man and the anthropoids, is their *present* similarity of structure. If there were available facts of like character further back they would either show a perpetual cleavage, equal to that subsisting now, or an actual approach ending in a *merger*, which would make the argument from similarity unnecessary; or a gradual *departure*, from the present time backward to the limit of knowledge in the past; and all, except the merger, would prove the theory of a common ancestor fallacious. May we not consider that for like reasons similarity will prove nothing at any stage, though traced indefinitely backward or forward.

It is remarkable that Mr. Darwin was satisfied to rest the argument on similarity, even without other evidence. (See the following from Descent of Man, p. 242):

"The great break in the organic chain between man and his nearest aline has been often advanced as a grave objection to the belief that man is descended from lower forms; but this objection will not appear of much weight to those who *for general reasons* believe in the *general principle of evolution*."

This means, the writer supposes, that if one is convinced without argument he will be satisfied with the argument.

To the writer it seems that similarity of structure suggests, not at all a common *ancestor*, but rather a common *designer*, who has utilized an adequate form for a diversity of creations. A man's bones, to be used for traveling the earth, are suitably heavy and strong; a bird's bones, for flying, are lighter, and contain larger air spaces; a fish's bones, to make way in the water, are light and elastic. The fact that all are framed on a similar plan, to admit of ample breathing, sustaining pressure, etc., and to accomplish those purposes are bound together in a similar manner, would suggest wisdom and ingenuity, and if indeed there be a superhuman creator, it would redound to his praise. A wise human being would do the same. It is not uncommon to find in the diversified products of a single manufacturer a differing use of a similar principle. We recognize the same maker in his varied machines, but it would not occur to us to ignore their different uses, or to draw other inferences than that of a common creator. The oversight or perhaps astuteness of the scientific writers in omitting the most essential features of man in making a comparison with the ape, to infer relationship, and including only physical features, destroys its effect if it appeared otherwise tenable. Minor resemblances are emphasized, but the major differences of mind and spirit are ignored.

But let us test it conversely. If *resemblances* are so important as to be a criterion, are not *differences* to be considered, or has this argument no converse? Mr. Darwin, more frankly than most of the present proponents, characterized the general range of the arguments stressed by him in these words:

"Many of the ideas which have been advanced are highly speculative, and some no doubt will be found erroneous." (Descent of Man, p. 244).

No case then can be made for a common ancestry by embryology nor by physical resemblance. Both relate exclusively to man, and can have no other bearing; but the theory as it is stated, and in most cases as defended, regards man in respect to his origin as but one of the aggregate of living beings; and therefore the chief feature of the theory, —that all living things descended from one,— applies to them as a whole. But if the argument is to govern as to man its details must be applicable to him also; and details, either in the embryo or in structural comparisons, which are not in the human line of descent, are in the nature of *contradictions*, and not proof.

The evidence of development, thus far, is not factual or direct, but indirect and inferential, and falls within the class included in our present theme. Accordingly it seems proper to devote a chapter to the logical basis of the argument for a common ancestor, which is also inferential, before going on to consider the factual proofs of development, *i. e.* those derived from paleontology.

CHAPTER VI

The Common Ancestor

Was there one, or was there not; and if any who, or what, or when, and why?

In this chapter is considered, as to its merits, the fundamental conception of the theory of development; its difficulties; its evidentiary support; and its relation to the prevailing laws of nature, with which it ought to conform.

CHAPTER VI

The Common Ancestor

The theory of evolution, as applied to man, cannot attain or maintain general acceptance, even if its high color can temporarily attract, without a credible explanation of how man arrived, as well as where he originated. This involves, as part of the evolution theory, the *mode* both of development into and emergence from an animal state. Is it contended that he and the beasts, after their modest beginning in a speck of protoplasm, travelled along together, each potential for its own type only, until they reached a defined or definable point of divergence, and then separated? The unit of origin suggests something like this. They began as one, it is said, but they are certainly wide apart now. How did they separate; and why; and when? Was it an accident, or was it inevitable from the start? If the latter, was it a plan? Whose plan? If an accident then it was not governed by law. But it is asserted that law does govern. This is a part of the evolution theory, and is an element in nearly every definition. Many such are cited, and none are to the contrary. The proposition that life evolved from one form into many, to be checked up and compared from one stage to another, requires not only an acquaintance with the governing law, but also a knowledge or means of knowl-

edge of the nature of that long journey. Were there recognizable stages? The assertion that man "evolved" so assumes, but it is a question of fact, and we know of no other like experience with which to compare it. Can it be independently proved? At the present point these queries are only suggestive, but they require an answer. They will be considered in detail in Chapter IX, under the heading "The Long Ages; Where was Man?" At present our treatment is general and summary.

It is averred, as we understand the theory, that, following the course of descent from the beginning downward toward its destined end, the amorphous thing destined to be man did reach a point of division or branching, where for the first time it began to take on a characteristic form, capable of being recognized and classified. At that point the then subsisting predecessor of man became a "common ancestor" for a group of beings known to the scientists as "primates." From them, it is said, descend both men and apes. Was that common ancestor, whom we may call a "tribal ancestor," (because he is the first recognizable head of his own family,—head of the clan, as it were), —"ape-like" as some suppose, or was he a shrew, or a rat, as others suggest? The fact that no scientist,—however wise and scholarly,—can give, or at least that none does give,—an intelligible reason for either indicates, (does it not), the failure, thus far, of the quest for assurance. Yet the scientist is hardy and not easily discouraged. If one branch breaks under him he leaps nimbly to an

other; and if that fails him he casts himself on the mercy of the whole tree. Mr. Huxley said "the path of the history of science is strewed with the wrecks of abandoned hypotheses"; but if Mr. Huxley himself ever lost his feet he was back again before the count of ten, as fresh and confident as ever. In this he is the type of his class, who, like Mr. Darwin himself, "for *general reasons* believe in the *general principle* of evolution." Cannot the scientist learn equally well from the operations of protoplasm *now* whether another world of living beings is still to come? Are the divisions of protoplasm, as observed *now*, the predecessors of new species, or even new characteristic forms of old ones? If not, is it not creating a theory by main strength to assert, as an explanation of subsisting life, that there *once was* such a change, with no new cause? Is not this important enough, and improbable enough, to call for evidence? *How and where did man begin?*

An object lesson is often more easily apprehended than an argument, and we have one at hand in protoplasm, from which, by the theory, all lines of life emerged. In its billion years of life protoplasm has not changed, nor "varied," nor "modified," nor has it in the least departed from the original type. (p. 274.) It is not now giving rise to independent types, or lines of descent. We can examine it with our own eyes, and are not driven to inference. How can this be explained? Is it not remarkable that the one instance which ought to prove the theory is still visible and tangi-

ble, *and unchanged*. Since its line is now simple, and it does not propagate at all except by division, and never changes character, as we shall see below, and does not indicate any future change into another type, why should we suppose its early history was different. But even if it is insisted that it was once otherwise, then, as its own order did not change by direct descent, if it had a secondary line which did we should have at least two cells of origin, and the slogan that all nature is one is still unproved.

The foregoing brings us to an impressive

Test of Verity:

The writer believes that the following facts, verified and confirmed, (though not in this form), by scientists of high standing, are fundamental to the doctrine of a common ancestry, and that no just solution of the problem can be reached without them.

(a) The original unit cell was sexless, but from it in some way descended, it is said, all our present forms of life.

(b) Reproduction by the only mode then possible, was always of the same kind. Protoplasm and protozoa, which exist now, and which have never changed, are examples.

(c) The progeny of the original unit followed no line of descent, but multiplied in numbers chiefly by division and colonization. This did not admit of any *new kinds* of individuals.

(d) At some undefined point of time that earlier mode of reproduction was succeeded by the bi-parental, which prevails now, under which the progeny descend from and succeed to their parents, and in details of personality are influenced by *both*.

(e) The difference is very marked. Under the bi-parental mode the parent ultimately dies, and the descendant himself becomes an ancestor. By the early mode this did not occur. Generations did not succeed each other. Division produced new cells, but all were alike, and all on an equivalent footing. For this reason it is said by many that except for mischance or accident the cells of amoeba were *immortal*.

(f) The first appearance of the bi-parental mode of reproduction was therefore the true point of origin, to which living beings must be traced. Thus there were *two* individual units in the position of original ancestors, having no predecessors, either in organization or function. It would not, this writer conceives, affect either the result or the argument if there was a separate pair, of characteristic type, as ancestors of our present families or orders, which is the case under special creation.

(g) The bi-parental method began its course in a character, and with a decree of maturity in the individual, which is altogether out of harmony with the evolution hypothesis; and we do not find this anywhere explained or accounted for in the elucidation of that theory.

(h) "Variation," which in this case means gradual departure from the original type, is the

cardinal factor in the practical application of the theory of evolution. We discuss this fully in a subsequent chapter, regarding it as a fallacy, but it is the only explanation furnished by proponents of the theory of the emergence of new types from old. Manifestly it could only have begun with the appearance of a definite line of descent, and thus only with the introduction of a double parentage.

It can hardly be contended, the writer thinks, that descent from the amoeba was not in fact limited as above described. Such was and is the nature of protoplasm, which exists yet, and has never changed, in the billion or more years attributed to life. It is not even asserted that it was ever different. All that is known of its characteristics and capabilities when the story of life began is learned from observation of its qualities and behavior *as they are now.* These are carried back tentatively to that early time, but every capability assigned to it beyond those it now possesses is mere imagination, and has no support except the needs of the theory.

The result is that the doctrine of "variation" or "mutation,"—meaning those supposed departures from the law of heredity on which the evolution theory is built up,—and which is explained in Part II, (Chapter I), giving it all the value and effect claimed for it, could have had no beginning prior to the emergence of the bi-parental method of descent. We are not concerned here with what occurred later, but only with the light we can get on the theory of common ancestry, at its very

first historical stage. What we observe is that there were then *at least two units*, male and female, entirely different in organization and function, from any predecessor. They did not descend from amoeba. Where did they come from? This certainly calls for explanation, but we have seen none, and this would, it seems, be enough to disprove the theory. How these could have originated without a miracle is not apparent. Some new cause, adequate to account for them, must have intervened. The unit theory, at least, has apparently nothing to stand on, and a new explanation of our world of life must be found.

That these results are not hypercritical or fanciful appears not only by the nature of the case but by the affirmations of scientific men of high standing, some of which are quoted below. If they are wrong no doubt some wiser ones will arise to correct their errors, but differences of opinion, if such there be, or fine discrimination, will not conclude the question. The governing inquiry is the *total effect*. The present writer asserts nothing as of his own knowledge. He has endeavored only to interpret correctly the evidence furnished.

The authorities generally are to the same effect, but a few specifically on this point are as follows:

Dr. Hans A. E. Driesch, the author of the article on Embryology in Encyclopedia Britannica, 66th Ed., says:

"If the asexual method of reproduction alone existed there would, so far as our knowledge at present extends,

be *no increase* in the number of kinds of organism; *no new individuality would arise.*"

To the same purport is the recent article on "Amoeba" in the Americana Encyclopedia," from which we quote:

"Amoeba reproduces itself by a simple process of division. * * * After a time these individuals in turn undergo a similar division, and so on. *It may therefore be said that amoeba never ceases to exist,—never dies; but simply multiplies indefinitely by repeated divisions.*"

A similar result is asserted by Prof. W. C. Allee, of Chicago University, who says in "The Nature of the World and of Man," p. 266:

"In some protozoa small colonies of cells are formed, but even in these colonial protozoans *there is no development of specialized cells joined into tissues such as occur in the next step of evolution.*"

From this we infer that there never was any unit of origin.

The foregoing can hardly have been overlooked by the very wise men who write upon this question, but this author does not remember to have seen the subject mentioned. Perhaps it is supposed that time, the great solvent, will eventually solve or absolve or dissolve this difficulty also. But we would expect to find some defined precursor of man suggested, with supporting reasons. We do not seem, however, to be able to get far away from the monkey, who made his reputation as an ancestor so many years ago.

Have we really abandoned the monkey descent?

Although it is universally scouted now, it is not long since the world was assured that man reached

his present estate either directly from or through the apes, or some other anthropoid. There was a plain gap between them however, and this was the cause of a prolonged search for the missing link, which some believed would be ultimately found. It is not surprising then that even yet certain experts use in their discussions language suggesting that the belief in a direct ape or monkey ancestry has not lost its influence. We have quoted above some of these, and add here a few examples from articles in the recent symposium entitled "Creation by Evolution," variously entitled.

Sir Charles Scott Sherrington, in his Introduction to Creation by Evolution, says:

"So far as face images forth mind, the reflection that from some simian grimace there has been evolved with the progress of time the smile of Mona Liso is an exhortation to fortify man in his effort to gratify his yearning for higher things and for a yet more highly perfected future."

Sir Arthur Smith Woodward says, in his article entitled "The Progression of Life on the Earth":

"Not all the stages between the ape and man have yet been found, because the higher the brain power the more wary the animals would become in avoiding accidents by which their remains could be buried in the earth; but the few fragments that are known show that the links certainly existed."

Prof. Gregory, of Columbia, writing on The Lineage of Man (p. 288-9), says:

"Although the fossil record of the evolution of the primates is meager it tends to show that the various groups appeared in the following succession: (1) Tree shrews; (2) lemuroids and tarsioids; (3) monkeys; (4) pro-anthropoids; (5) diversified anthropoids; (6) primitive man; (7) modernized man."

"Taking the series as a whole, it shows a remarkable gradation of forms and structures, culminating in various side branches, and also in man."

"Elliott Smith and his students in England and Tilney in America have worked out the sequence in social structure from tree-shrew to lemur to monkey, gibbon, orang, chimpanzee, gorilla, man, and they find progressive changes culminating in the enormous expansion of the brain and intelligence in man."

Evidently two supporting doctrines, both still believed and asserted, contribute to the theory of a common ancestor of primates, including man,—*first*, the conviction of the unity of living nature, and the necessity of linking in the race of men; and *second*, similarity of physical structure. Both of these would fit in as easily with either direct descent from a monkey as from some other common stock. The theory of human descent from the monkey was, when first seriously urged, a shock to the sensibilities of the world, as well as a blow to the long prevailing belief that man was of divine origin. Perhaps for these reasons, as well as because of inherent difficulties in proof, that theory made its way slowly, and against strong resistance. As elsewhere stated this is now professedly abandoned, and another theory reigns in its stead, i. e. that man, (with the apes and a few others, members of a distinctive family called "primates"), is descended remotely, but not immediately, from an ape-like ancestor, without title and without portfolio.

This writer ventures to believe that the doctrine of direct descent from the anthropoids was simpler and easier defended logically, if only it could have

been proved. In his opinion the substitute doctrine is not only equally unproved, but is also untenable on logical grounds. The two need not be compared here, for it is now accepted "by all scientists," (so broadly it is stated), that we did *not* descend from apes or monkeys, but that men *and* apes had a common or tribal ancestor, (not to be mistaken for the original unit), far back in time, and at a low stage of animal progression; but as to when, or how, or what, or why, no one seems to know, nor is any test or criterion other than minor details of physical structure suggested by which to ascertain. No reason unless physical repulsion seems to explain the shift of ground, but this would not be enough if the scientists were able either to define or describe the "common ancestor." This has not been done, but many pictures have been drawn. His physical character and social condition are thus idealized by Prof. Gregory, (Creation by Evolution, p. 290):

"The conclusion remains, based on a vast accumulation of evidence, that * * * the remote 'common ancestor' of perhaps ten million years ago was a tailless, partly tree-living, pro-anthropoid, in many respects for more like a young female chimpanzee than like a modern white man."

We have quoted above, under the heading Similarity of Structure, a few of the conflicting views as to what that ancestor was. Among those quoted was Prof. Kirtley F. Mather, who said, in respect to the remote predecessor "to whom the zoologists refer man":

"In general appearance this creature resembled a rat more closely than a monkey or a man."

It is remarkable that the arguments by which the theory of those intermediate individuals we have designated as "tribal ancestors" are supported, are essentially the same as when direct descent from the ape was urged, and even the verbiage is but little changed. Many of the twenty-four scholars by whom this theory is supported in the symposium entitled Creation by Evolution mingle with their discussion reasons why descent from a disgusting animal should not offend human sensibilities; and each asserts his own assent,—usually on the ground that however unpleasant he finds it to review his own ancestry he may hope for something better for his descendants. To the ordinary sensibility however the suggestion is still repulsive, somewhat as if a wise person with no nerves should recommend a snake as a family pet. Nevertheless if this writer knows his own mind he will not decline to accept a plain truth or a convincing argument; but no convincing reasons have been presented. Some reasons for thinking the newer proposition untenable are these:

1. It is physically impossible, in view of the laws which are a part of the theory, that a pair of animals, far inferior to the apes of the present day, should produce as offspring, even by slow degrees, both present day apes and men. These are of distinct types; and, as shown elsewhere, they have always been distinct. The gap between them is very wide—"immense" says Mr. Darwin; and the law of heredity intervenes.

From Prof. Conklin we quote, (p. 7):

"To understand what has happened and even what will happen we have only to examine what is happening. This is what has been called the 'Law of Continuity,'—or more accurately the 'Doctrine of Uniformity,"—namely the belief that nature is uniform, and her processes continuous, that the law of cause and effect, of gravity, of conservation of matter and energy, of thermodynamics, chemical affinity, life and death, heredity, development and evolution are the same yesterday, today and forever."

S. Stewart Gager says, (Creation by Evolution, p. 142):

'Studies of great thoroughness and accuracy have led biologists to reach the unanimous conclusion that every living thing comes into existence as the offspring of other living things *somewhat similar to itself*."

Not only so, but the theory of evolution contemplates that the cell of origin conferred on its successors type and character in general *incapable of change* to a different type, at least without a new cause.

Dr. Lull, in "The Ways of Life," p. 244-245, says of the definite characteristics of mankind, in all stages of evolution:

"If, as we believe, his (man's) kinship is broad enough to embrace the whole animal kingdom, his physical immortal substance, the germ plasm, must go back in unbroken continuity to the period of life's beginnings. He was not at that time in any sense man, * * * but, in common with all other living creatures, there was among these pristine forms *an ancestry potentially capable of evolving into the ultimate product.*"

If there be any governing law,—i. e. of heredity, —no strain or line of descent, short or long, could

begin in one type and end in another. The scientific authorities for this are given elsewhere; but it proves itself for our present purpose, since such a departure could not be controlled or predicted as to time, manner or character; and a change once made might be reversed, or a wholly different one might come next. The line could not be traced forward or backward, and no two instances might conform. Yet the capacity for such a departure, dependable and predictable, and in harmony with law, is of the essence of the theory of unit origin, culminating in our present wide diversity.

We are right therefore in asserting that if any such typical change should happen it could not be in pursuance of any governing law; and evolution, as a doctrine, could not explain it. Every change of essential character, occurring in the course of progression, and following no law, would be "either an accident or a miracle," in the language of Dr. Newman, describing a similar hypothetical occurrence, not within the lines of heredity.

2. But even if the birth from the same parents of a man and an ape, or an elephant and a squirrel, or a dog and a rat, were possible, there would be another result which would depart from dependable consecutive order, and of course from law:— The supposed common or tribal ancestor must have been a *race*, and not an individual, for he or they must also have had an ancestry. The world of beings must, by the terms of the theory, be linked in with a line of predecessors widely spread,

even by that time. But for illustration we may take them to be only a pair of individual apes who themselves had emerged from a complex past. If they two found themselves the sole individuals of their class, and both men and apes were to be their progeny, a situation would arise inconsistent with dependable or predictable progress, and therefore governed by no law. The apes are now mere beasts, and we are assured by Prof. G. Elliott Smith, in a passage quoted elsewhere, that they are condemned to forever remain so. From their mating only apes could result. The doctrine of heredity stands squarely in the way. Dr. Lull, (Ways of Life, p. 87) says that no intelligent person today seriously doubts the truth of heredity. That law has been defined by many very able scientists in terms fitting the very case.

Mr. Herbert Spencer said, (Biology, Vol. 1, p. 301):

"Understood in its entirety, the law (heredity) is that each plant or animal, if it reproduces, gives origin to others like itself; the likeness consisting not so much in the repetition of individual traits as in the assumption of the same general structure."

That the rule contemplates the continuance of the characteristic type of the parent in his descendants is also agreed.

Prof. John Walter Gregory, of the University of Glasgow, said, (Creation by Evolution, p. 112):

"No highly specialized organism can be expected to develop into an altogether different organism; there is no

chance, for example, that a bumble bee will give birth to an elephant."

Dr. H. W. Bates, (quoted in Creation by Evolution, p. 174) says:

"As the laws of nature must be the same for all beings, the conclusions furnished by this group of insects (butterflies), must be applicable to the whole organic world."

We gave in another connection Dr. Pupin's comments on the dependability and predictability of the electrons. Departures from law by electrons would be as conceivable as departures from heredity by descent, and both would introduce into the world confusion and chaos.

This is confirmed by the language of Dr. Osborn in Origin and Evolution of Life, (p. 191):

"With life * * there is an immediate or gradual separation of the organism into two complexes of energy, the energy complex of the organism, which is perishable with the life of the individual, and *second the germ of heredity substance, which is perpetual.*"

"The supposed germ energy is not only cumulative, but is in a sense imperishable, self-perpetuating, and continuous during the whole period of the evolution of life upon the earth."

Manifestly the whole theory of evolution, as now understood, turns on the question of substantial identity between parent and child; that is to say, in the language of science, the cell of origin had in it potentialities *which were definite in their character.* The progress of life, with all its intermediate varieties, is toward a definite end; and germplasm of one type can be depended on to persist. It cannot be changed, nor its definite

direction diverted, unless temporarily, by anything which can happen to it, short of a new cause. This question is considered elsewhere, and this may here be taken for granted. A pig may not find in her litter of piglets for example, a rat and a fish. Changes in the pig,—yes, by many causes, but never by producing a chicken or a human baby. "Whales do not produce feathers, nor birds whalebone," says Mr. Huxley.

If this were not definitely true there could be no heredity, and nothing in the nature of dependable physical law, and of course no evolution; for in that case progeny might, without traceable cause, depart from the parental type, and a human pair might produce an ape or a monkey. There could be no such thing as cause and effect. All characteristics of descendants would be unpredictable, and therefore accidental. Dr. Francis Arthur Bather, in Creation by Evolution, p. 110, lays this down as the best test of the soundness of a theory. He says:

> "This power of correct prediction is generally held to be the strongest proof of any scientific theory."

The result is that, assuming the soundness of the theory of the unity of life, and of a reliable law or rule of evolution, when the cell of origin, having in it a definite potentiality pointing to an outcome in humanity, has started the being on its way, nothing can divert it unless it be a new cause; —but that would be a miracle. By no means can that life emerge in an ape, which is a beast, and

also in a man, which is not. A germ starting in a bee and emerging in an elephant, (which is the case stated by Prof. Gregory), would not be essentially different; nor the case of the pig and the rat; nor even the converse,—starting as a man and emerging as an ape, or in that inferior creature known as the common or tribal ancestor.

3. It is easy to see how the original pair of common ancestors and their progeny would have increased, as generations came and went. The average generation covers a third of a century, making less than three hundred and fifty years for ten generations. At the rate of two descendants from each pair there would be in ten generations one thousand and twenty-four; and, reckoning backward, each present descendant would trace to a like number in the first generation. In a thousand years, or a million, or, by the estimate of Prof. Gregory, ten million, the number would be almost indeterminable, even after making ample deductions for overlapping or deficiencies of progeny. If there is no law that children shall be as the parents, then in not one instance, much less during the whole course of descent, would it be possible to predict or to compute the numbers severally of apes and man. What rule would there be for judging how many in a generation or *in toto* would be men and how many apes? The possibility of both types descending from animal ancestors, if it be assured, would not aid in judging how often or when the cells of origin would again change their character. No mode is conceivable for decid-

ing whether they would divide equally or in any given percentage, or whether a generation would be wholly of one or the other, or whether a generation or more would be skipped, or even whether they would reverse, or produce a different type. The distribution of the world population, as it is at present, helps to illustrate this. The human race is now estimated at a billion eight hundred millions, scattered over the earth, ruling it and all its creatures; but there remains only a huddle of apes, still beasts.

How to find a just criterion.

If we apply to the review of known facts the test furnished by Prof. Newman, quoted below, to determine the accuracy of a theory, we must conclude that the theory of human evolution was not drawn to explain known facts, but was framed first, with the hope of afterwards finding facts to fit it; and that the facts thus far discovered contradict, but do not support it. Dr. C. Stewart Gager's maxim quoted elsewhere, seems to apply here. It is this:

"A theory is a hypothesis that has been found to be in harmony with all the known facts, or with the vast majority of those facts."

And Prof. Scott of Princeton, quoted above, avers in substance that if a theory does not take into account and explain, not only the facts known at the time, but those afterward discovered, it is not sound. (See Creation by Evolution, p. 82.)

Another criterion by Prof. Scott is pertinent.

He says that the view offered by evolution is "that all living things now in existence have arisen by natural descent, with modifications, *from ancestors that might be traced back step by step*, to unknown simple forms of life." And Dr. Julian S. Huxley, (Creation by Evolution, p. 327) says:

"In its march through time life does follow certain main directions. This fact can be shown *by actually tracing the history of animals* through geologic time by means of their fossil remains, * * *"

And Prof. C. Lloyd Morgan, (Creation by Evolution, p. 343) says:

"What, from our point of view is essential to the idea of evolution is upward passage by progressive steps along definite, recognizable lines of advance, with continuity of progress from lower to higher."

And Prof. Newman, agreeing almost in terms with Prof. Scott, quoted above, (Creation by Evolution, p. 363) says:

"It would be a poor theory that did not agree with the facts on which it was based. A good theory must meet and explain all new facts within the scope of its applicability that come to light subsequent to its proposal."

That so many earnest and able investigators, knowing, as they must, the *hiatus* between the facts supposed and the governing law, have neither answered nor mentioned them is a surprise to the interested spectator. This writer cannot find the least reference to them in the books, and yet they appear to him momentous, if not insuperable. Dr. Lull, in his book on "The Ways of Life," p. 22, suggests a mental attitude which may explain it.

He says, (in reference to certain other doctrines earnestly pressed):

"These theories range large in scope and show how the scientific imagination can soar when limiting facts are not obtrusive."

The wide difference between men and the anthropoids is the chief obstacle in the way of the theory as to man; and the characteristic differences between men and other orders, are insurmountable obstacles as to them. Many writers minimize these, but not Mr. Huxley, who was the prophet of that creed. As to man and apes, he says; (Man's Place in Nature, p. 97):

"Let me take this opportunity then of distinctly asserting that they, (the structural differences between man and even the highest apes), are great and significant."

"They, (those structural differences) certainly justify our regarding him as constituting a family apart from them; though inasmuch as he differs less from them than they do from other families of the same order there can be no justification for placing him in a distinct order."

And in another place (p. 102) he says:

"No one is more strongly convinced than I am of the vastness of the gulf between civilized man and the brutes; or more certain that whether *from* them or not he is assuredly not *of* them."

Mr. Huxley was a strenuous protagonist in his day, but he left great gaps which his facts and his reasoning could not bridge, except by inference. He had not found, nor have later scientists found, anything whatever in the different stages of progression with which to compare man, even in the processes or stages of bodily development, in his

supposed course. He could compare him structurally with the ape only by omitting altogether some immense period after the dating of the supposed common ancestor. Prior to that, for all the time consumed, according to the hypothesis, in developing living beings in changing forms from the cell of origin, nothing whatever having the elements of certainty was known in Mr. Huxley's day, or is known now. The foregoing reasons, and their inevitable conclusions, seem to the writer sufficient to expose the lack of that foundation in fact, or that coherency, or that measure of certitude, which alone could justify acceptance of the theory of unit origin, or of a common ancestor. This will be developed more fully in Chapter IX, "The Long Ages; Where was Man," where it will stand alone.

The task of the scientist will not be accomplished until he has advanced far beyond any evidence presented now to show that man did or could, consistently with known laws, develop to his present state without the intervention of a superior being.

We come next then, to consider the only factual evidence presented to prove that man came to his high estate by development.

CHAPTER VII

The Direct Evidence

This chapter contains a review of the factual evidence produced in support of the development theory affecting man, with sufficient fullness, it is believed, to enable the reader to judge for himself as to its weight.

CHAPTER VII

The Direct Evidence

The Significance of factual evidence.

Factual evidence, for our present purpose, means paleontology. The stress of the case on which the proponents rest their confidence is here, Mr. Huxley based his conclusions chiefly on this class of evidence. He said, (Darwiniana, p. 239):

"Primary and direct evidence in favor of evolution can be furnished only by paleontology."

and in the Introduction to the same volume he said:

"The fact of evolution to my mind is sufficiently concluded by paleontology";

and Dr. MacCurdy (Human Origins, p. 313) says:

"The data bearing on human origin comes primarily under two heads, human skeletal remains and cultural remains. Human skeletal remains are the rarest and at the same time the most convincing of documents."

In another place he says:

"After all there is no evidence quite so incontrovertible as the presence of man's own skeletal remains."

Prof. Louis T. More, in his book The Dogma of Evolution, pp. 117, 118, shows in picturesque language the weakness of the case for evolution if there were no fossils, and quotes both Darwin and

Huxley to the effect that the only substantial support for the theory is found in paleontology. We use here his summary of Darwin's position:—

"He devoted four chapters to the discussion of Paleontology, and made it clear that to his mind the discovery and knowledge of fossils is the evidence which alone can change his doctrine of evolution from an abstract hypothesis to a concrete fact."

He also quotes from Huxley the view which we reproduce, assuming it to be authentic:

"In view of the immense diversity of known animal and vegetable forms, and the enormous lapse of time indicated by the accumulation of fossiliferous strata, the only circumstance to be wondered at is, not that the changes of life, as exhibited by the *positive* evidence, have been so great, but that they have been so small."

We come then to that field in our search for acceptable evidence. There is no better illustration of the confusion in which the human mind floats in the effort to state prehistoric conditions, as bearing upon and supposed to lead up to humanity as it is, in line with the evolution theory, than the early chapters of Mr. H. G. Wells' "Outline of History." Mr. Wells is not a scientist, or at least not distinguished in that field, although it is said he was a zoologist before he was a writer, and is not probably attempting precision in stating the results of investigation, but he is an intelligent layman, and frankly expresses both his convictions and his doubts. The results, regarded as history, would be laughable if it were not meant to be serious. As his work can scarcely be deemed authoritative on this point we do not deal with it

independently, although, purporting to state facts, it undoubtedly has had an important influence in forming popular opinion.

Manifestly the field of paleontology, expressed in periods of time, is limited. It can only begin with the date of the earliest remains which are distinctly human, or which are shown by evidence to be progressing into humanity. Looking backward from that date, no presumption of a different form or of an earlier state can be justified. At the *latest* extremity of the chain of human fossils there might be a presumption of *prospective* continuity, but that would not help the theory of development. At most it would bear on the question of antiquity, which is not here in question. When, therefore, following the chain of evidence *backward*, (which, historically is not a sound method, but for this purpose is convenient), we reach the last discoverable link, there can be no presumption of an earlier change, upward or downward. On the contrary, the normal presumption applied constantly in other affairs is that there had been *no* prior change. From that point backward to the very beginning nothing evidentiary appears for the mind to take hold of. There being then no proof, and no basis either for presumption or inference, we have nothing on which even to found an argument. The theories as to what took place in that immense period of time which has been pictured by so many writers are admitted to be inference only, as we will see.

When Ikey Partington assured his mother that

the world rested on a turtle, she asked,—"What does the turtle rest on?" The answer was,—"Another turtle." "But what," persisted the old lady, "does that turtle rest on?" "Why, mother," said Ikey, "it's turtles the whole way down." This, we may seriously affirm is a fair illustration of the hypothetical nature of the scientific argument covering that period. One inference is supported by another. It is turtles the whole way down.

Truth, the proverb says, is at the bottom of a well. It may be hidden elsewhere. Sometimes men fail to see it though they may be looking it in the face. A mere fact, if sufficiently outlined, ought to be easily apprehended; but truth, in most of its phases, is an inference or a deduction from a series of facts, and is often colored by the desires or prejudgments of the seeker; or if not that, yet he may fail to recognize it because he is looking and listening in one direction while it advances toward him from another. This is typical of much of the truth for which we have been searching, which is remote in time, often hidden in fog, and in general elusive. Many misleading factors, together with misapprehensions or errors of interpretation which often arise from the eagerness of investigators to make the most of their discoveries, help to explain why, using our best endeavors, we find so little which seems to justify any affirmation. In many professions the gap between the theorem and the Q. E. D. is filled with weak little assertions such as "we must suppose;" or "It often happens."

The Field for Factual Evidence.

Four classes of proof are relied on to establish the evolution theory. We take these from Professor Kellogg's recent book on Evolution, (p. 48), but they are not different in effect nor greatly different in form from every other analysis. They are these: (a) Proof by comparison of fossils or ancient bones; (b) proof by the course of embryonic processes; (c) proof by the distribution of bones among the accumulations of rock and soil during the periods of earth formation; and (d) proof by geographical distribution. It is easily seen that (c) and (d) do not fall within the field of this discussion. The *place* where bones of human beings are found may indicate somewhat,—though subject to correction by other facts,—the relative *time* when man first appeared, and the approximate age of the discovered fossil, but as bearing on the theory of development the comparison of an ancient skeleton with recent ones *of like character* indicates rather that there has been *no* development during that period, which, as time goes in this field, may be very long. Neither do those widely scattered bones justify any inference of order or succession among them. This is no remote illustration, for, as will be seen below, it fits the discoveries thus far made. Dr. Osborn, in Man Rises to Parnassus, states his firm conviction that man, or his predecessor of that early day, a million years before the Cro-Magnon, was more of a personality —physically and mentally—than the owner of the fossil bones was in his much later day; and man's

history since the Cro-Magnon has not been one of development, but recession. This is Prof. Kellogg's opinion, quoted later, and also the considered judgment of many others.

It must follow that the process of human development, if such there was, *preceded* the earliest of the series of discovered fossils, and occurred in a period still farther back—as to which, as we shall see, there is no evidence at all. Thus Isaac's description of the undergirding of the earth was more scientific than he himself was aware. The scientists, to prove development, offer us a series of inferences, one mounted on another, reaching back into vacuity: "Stones of emptiness," without a resting place, says Isaiah. *Development* being the whole object of our inquiry, the relative age of *similar* fossils does not help to prove it. This seems too plain for discussion. We therefore think it proper for our purposes to ignore (c) and (d). We have already considered (b), and only (a) remains. As it was paleontology which Darwin, Huxley and other outstanding leaders have regarded as the main support of the evolution theory it deserves full examination, and a place by itself.

To reach a just conclusion we must not overlook our major premise, stated and explained with its bearings in an earlier part of this discussion, i.e., that man's mind and all his outreaching faculties are among his human characteristics, and must always be reckoned a part of his personality. His body is of course mortal, and goes back at death into the constituents of nature from which it came,

but whatever may be thought of the continuity of his mind and spirit,—whether believed to outlive the body or not,—the individual while he lives is not complete without them. This we suppose to be conceded. We have quoted in another place the words of eminent scientists stating it in more eloquent language than we can command. It is enough to say here that all recognized human qualities must be taken into account. What then has been found?

Fossils and Bones: General Considerations.

In this field, if anywhere, one might fairly expect, as Huxley and Darwin expected, to find convincing proofs. Nothing, on a subject like this, could be deduced from the mere existence of fossil bones, even if numerous, and even if admittedly human. If they were all of the *same* character, or of the *same* degree of maturity, they might tend to prove that all humanity came into existence at the same time, or at least at their normal estate. This would be inconsistent with development from an inferior order, and also with a theory of unit origin in common with other forms of life. The proponents of evolution must, to support the theory, follow, or indicate that others have followed, one or the other of the two lines of argument we have above outlined. Both contemplate two assumptions which we believe must, to support a practicable hypothesis, be found always true: (a) every individual is traceable to a single cell; (b) single individuals mature at different

times, and all do not survive to maturity. It must follow that in the aeons of time there were scattered over the habitable parts of the earth skeletons in large numbers *in different stages of development*. After taking into account destruction in various ways, loss by shifting of earth surfaces, erosion, etc., there must still have been many left. These should indicate the stages through which they passed, one being interrupted here, another there. Since so many matured bones have been found, no argument will satisfy us that the bones of those dying in transition stages would not have been also found, if such there were. If the theory of development is sound this could not be otherwise; yet the ascertained facts are different. *First*, no fossil evidences are reported of development in different degrees, nor indicating that development had been interrupted at different stages. This should appear by differences in skeletons, but every skeleton thus far discovered, so far as the writer can learn, is mature in form, though some are adults and others youths. (See the comparison of skulls mentioned in MacCurdy, Human Origins, p. 377.) Mr. Darwin himself appreciated this, as will appear later.

Second, the paucity of skeletons capable of throwing light on this subject is known and lamented by the scientists. Professor MacCurdy, (Human Origins, p. 327), says:

"Scientists have often remarked on the paucity of human remains that could with certainty be referred to a very early epoch; a condition which more than anything

else has kept in check the science of pre-historic anthropology."

He also refers (p. 372) to

"the danger of being misled by individual variation in a series so woefully incomplete as is our present list of fossil human skulls."

Prof. Osborn, in Men of the Old Stone Age, p. 24, says:

"In more than ninety years of exploration only three skeleton relics of men have been found in the ancient river-drifts; these are the 'Primal' (Ape Man Java), the Heidelberg and the Piltdown; in each instance the human remains were buried accidentally with those of extinct animals, after drifting for some distance in the river or stream beds."

Prof. Simpson, in Man and the Attainment of Immortality, (p. 105), computes that sixty fragments in all have been found from which particulars of man at different ages of the world can be observed, "and complete skeletons are very few." It should be noted, incidentally, that numbers of little fragments, supposed by some to be authentic, have in some cases been gathered out of collections of animal bones, but these are not instructive. Dr. MacCurdy mentions five hundred in one place, but he says they all pertained to ten individuals. He gives, in his chapter on Fossil Men, a detailed description of the several finds, (Human Origins, 116; see Dr. Osborn in Man Rises to Parnassus, p. 188). Many of these are Cro-Magnons, and belong to the present age of man. The other remains he describes are of dat-

ings impossible to fix with any assurance. They are judged more by their surroundings than by marked differences in structure. MacCurdy, p. 210, says of the condition of things at the arrival of the Cro-Magnon:

"The first appearance in Europe of what we are accustomed to call the decorative arts . . . is coincident with the appearance of a new race, the Aurignacian, which supplanted completely the archaic Neanderthal of Mousterian times. Physically and mentally the Aurignacians, as represented by the skeletons Cro-Magnon and Comte-Chapelle, were more nearly akin to modern European races than to the old Mousterians."

It will be seen below that the Cro-Magnon was the climax of human history, surpassing present subsisting man, and if he was our ancestor also surpassing his descendants, as they now are, and wholly distinct in character from his predecessors. Therefore his remains have no bearing on the present question. Thus the whole burden of sustaining the theory by paleontology must be borne by a limited number of instances. This circumstance alone suggests reasons for doubting the soundness of a theory which ought if true to be supported by a multitude of remains. Professor Kellogg, however, regards them as ample, and observes, (Evolution, p. 232):

"As we survey the imposing array of human fossils now on exhibition before the wondering eyes of modern man . . . we can plainly see man's physical evolution."

If however, few as they are, they harmonize with the assumptions of the development theory they may teach us something about the origin of

mankind. We note, to begin with, that at most these remains are in the nature of circumstantial evidence, and the rule in respect to such evidence is that it is only convincing when the reasonable inferences all tend one way, and the facts can have no other fair explanation. Our effort therefore will be to learn whether, applying settled rules, these remains are (a) sufficiently distinct to indicate different stages of progress; and (b) such that the latest in order of time can be identified as human.

This is a proper place to note the fact,—of which the evidence belongs in another connection,—that the entire period within which these fossils fall, on both the ordinary and the most extravagant estimates of time, is known as the Neanderthal period, and nearly all, if not all, the individuals to be mentioned were of that race. It is admitted by the investigators, without exception we believe, that the Neanderthal race was *not* within the human line of descent. Authorities to that effect are quoted elsewhere. This eliminates them all, and their whole life period of three hundred and fifty thousand years. They are a sort of parenthesis, outside the field of our inquiry. They can throw no light on the history of our race, and cannot be regarded as evidence on our present point. To this author it seems remarkable that practically every writer in support of the development theory, though conceding that the Neanderthal race, and of course its history, is extraneous, find almost the whole of the paleontological evi-

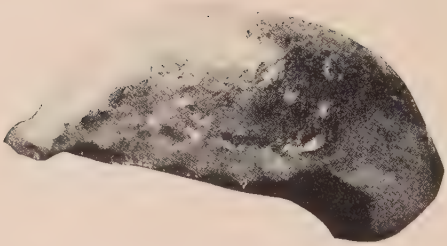
dence within that range. Two at least of the four standard skeletal evidences of human development were of that race, and can give us no information which concerns our present inquiry. If the Neanderthal bones are to be disregarded here, as they plainly should be, there would be little or nothing left of paleontological value affecting the course of human descent. We cannot, however, ignore the diligence and earnestness with which the history of the Neanderthal race is pressed as proof. We therefore go on to consider the whole field of paleontological evidence, and to examine its merits.

Fossils and Bones; in detail.

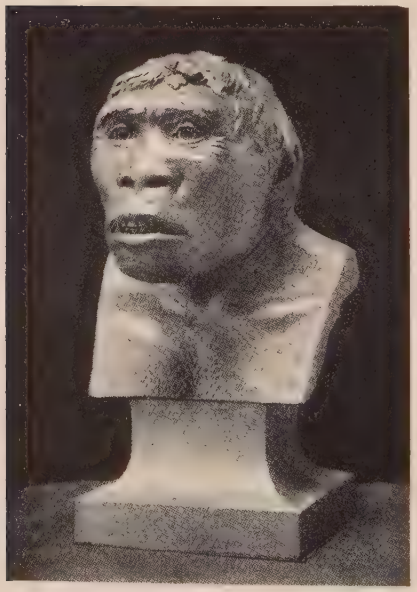
(1) *The Java Ape Man.*

The discovery generally supposed to be earliest in time, although Doctor Osborn now places it third, is described as Pithecanthropus Erectus, in English Java Ape Man, whose period on the earth is placed by some writers at "from one to three or four hundred thousand years ago," (Kellogg, Evolution, p. 249). This find consisted only of "the upper part of a cranium, two teeth and a left thigh bone," (MacCurdy, Human Origins, p. 313). The thigh bone was not found with the cranium, but fifty feet distant, and not in the same year; "at the close of the rainy season," says Osborn. Dr. Lull says,—Evolution of Man, p. 13,—

> "They probably pertain to one individual, although they were found scattered through some twenty yards of space, and were not all discovered at the same time."



Skull Cap of Java Ape Man as Found
(*from Men of Old Stone Age, p. 77*)



Java Ape Man as Pictured by Artist
(*from Men of Old Stone Age, p. 77*)

The cranium fragment is shown in the cut opposite this page. Later a part of a lower jaw and a tooth were discovered. Of course the effect of this find as proof of anything pertinent here depends on its being in fact human, or on the way to humanity, so that comparison may be made with it to prove at least one stage in progress upward. Whether these fragments had any human character, or any original relation to each other, is unknown. Prof. MacCurdy says of them:

"Dubois (the finder) considered that the Pithecanthropus Erectus remains all belong to one individual or species, but *opinions still differ* (1924) *on this point*" (p. 315).

And Prof. Osborn says of it (Men of the Old Stone Age, p. 77):

"Some regard the skull as that of a giant gibbon, others as pre-human, and still others as a transition form."

After commenting on these differences of opinion Prof. Osborn adds:

"There are, however, reasons for excluding Pithecanthropus from the direct ancestral line of the higher races of man."

Since its authenticity is in doubt, and it has not convinced the learned in that line, it is hardly ponderable as evidence. Nor is it aided by representing it, in art and sculpture, as verified and reliable. Artists have drawn striking pictures of this supposed example of early humanity, in which the eyes, ears, mouth, nose, prognathous teeth, prehensile lips, augmented skull, and somewhat human aspect, are the dream of the artist,

the only genuine item being an undesignated portion of its skull cap. Many distinguished authors have done themselves the injustice to reproduce this drawing in their books. It is true that they do not assert the resemblance, but to the public the contiguity is almost equivalent to endorsement. Some of the most prominent have had similar drawings made under their own direction, and published with their works, which by most readers would be taken as a tacit assertion of verity. This is not, this writer submits, an unfair characterization of the frontispiece of Dr. Osborn's recent book, "Man Rises to Parnassus." It is probable, is it not, that the public impression of the facts by which the evolution theory is proved is derived more from these pictures than from the details in the text. Let the reader examine the cuts here inserted for himself, and judge how nearly this particular "restoration" is justified by the fossil fragment, on which it is founded.

It is remarkable also that the facts about this find, from which its whole weight as evidence is derived, should be so greatly misconceived. A comparison of the exhibit with later discovered fossils, giving it its full effect on the mere question of *antiquity*, lends no weight whatever to the theory of *development*. The real question on that subject must be whether it was preceded by others in less advanced stages; and whether it was followed by others further advanced toward humanity. On the sole point of our inquiry, i.e. development, we have no information. On the subject

even of antiquity it may be said that to make an instructive comparison one would need more of the bodily frame than this exhibit furnishes; and no comparison with other skulls or fragments of skulls afterwards found helps us, because no two fragments are nearly enough alike, in time or character, to be compared; and also because, being fragments only, they differ in relative skeletal location, as well as in form. But even if this skull could prove anything as to the race to which it belonged, its effect as evidence, on either the question of antiquity or development, must begin with its age. This is inferred by the proponents from the depth of the bed of earth where it is said to have been found below the surface. Newman believes it to be very ancient, and says, (in his statement in the Scopes case):

"There is no proof that these remains belong to the same individual, or even to the same species, but they are all human in their anatomical character, and they occurred in fossil-bearing rock about 500,000 years old."

And Prof. Fay-Cooper Cole (in his statement) says:

"These bones date from the end of the Pliocene period, at least 500,000 years ago. . . . These bones were found in undisturbed strata forty-five feet below the surface, at a point where a river bed cut through the mountain side. . . . There can be no doubt that these bones were laid down at the time the stratum was deposited."

But it appears from authentic data that this is not correct. The locality is shown in several books, by photographs, plats and description. In Antiquity of Man, by Keith, p. 422, and in Men of

the Old Stone Age, by Osborn, (see drawing on p. 76), it is shown that these bones were found on the margin of a river, at about the level of its present surface. DuBois (the finder) "saw the top" of the skull and did not dig for it. It was visible, and he got it "by carefully clearing away the stone." Keith (p. 424) also shows that afterwards a special expedition, sent out to investigate, found at the same place many animal bones, but not a vestige of human skeletons except a single tooth, the character of which was in doubt. Of this tooth MacCurdy (Human Origins, p. 316) says:

"Should this tooth prove to be human Pithecanthropus Erectus could no longer be regarded as a precursor of man."

That these bones were *not* in "fossil bearing rock," as Dr. Newman supposed, nor under forty-seven feet of soil, but quite open and visible, and probably carried into that position by the swift current of the river, appears further from Professor Cole's description. He says:

"These bones were not lying together but had been scattered over a distance of forty-five feet by the action of the ancient river which deposited them."

And Professor Osborn, in a passage quoted above, (Men of the Old Stone Age, p. 24), said of remains found in this manner that

"in each instance the human remains were buried accidentally with those of extinct animals, after drifting for some distance in the river or stream beds."

Prof. Cole's statement as to the forty-five feet of depth appears to be carefully guarded. He

evidently only means to say that the fossiliferous *bed* was that far below the surface, which may be correct, but the bones themselves lay on the margin of an adjacent stream, which had cut that deeply into the body of the soil, probably a long time before the bones were deposited there by the flowing current. The picture is more informing than the description. Doubtless Prof. Cole's language expresses his own belief correctly, but it is inference only, and evidently incorrect.

Therefore the age as well as the human character of these remains is in the gravest doubt, with the probabilities strongly against their having any proper bearing as evidence. The depth from the original surface mentioned by some must assume that they were deposited there when either the river was that much higher, or the normal surface of the soil that much lower; and as none of these factors can be known, the assertions of age involve a nimbleness in guessing quite beyond the experience of the present writer. We will not here discuss further the bearing of this exhibit on the subject of man's antiquity, but it seems quite plain that, standing alone, it has no significance at all on the question of *development*.

An extraordinary departure by Dr. Osborn from some of his former views as to this fossil, which is by some deemed highly significant, is found in his newest book, "Man Rises to Parnassus," (1928). In Men of the Old Stone Age, (3d Ed., 1924), p. 77, he said, of the so-called Ape-Man,

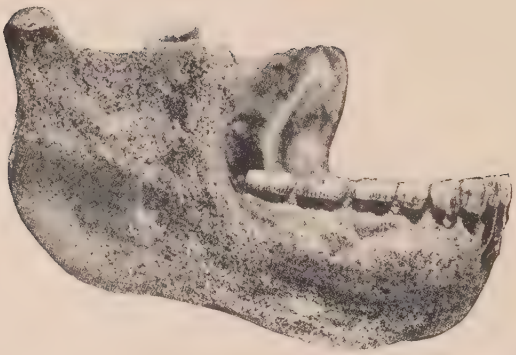
"We may form our own opinion from a fuller understanding of the specimens themselves, always keeping in mind that *it is a question whether the femur and the skull belong to the same individual, or even to the same race.*"

He *now* says, of the same remains, (Man Rises to Parnassus, p. 82)

"He (Java Man) certainly had long, strong legs and probably short arms. He walked erect, he thought as man, he probably spoke as man, although his vocabulary was limited."

This is mere imagination. Even if the one thigh bone was authentic, (which the Doctor had always doubted), the bones are only two, found at different times and places; they show no other limbs; no hands; no feet; no neck or jaw; and no indication whatever of thought or speech.

The eminent Doctor's departure from the views on this point which he had so confidently maintained for more than thirty years, is not to be lightly regarded where the question is the evidentiary value of a fossil considered by most scientists as of the first importance. Dr. Osborn has for many years occupied high rank in the scientific field. He is said by Professor Kellogg, (quoted elsewhere), to be "the present dean of American paleontologists." Since therefore he now places this fossil not first but third in order, and locates it a long stretch further back in time than his earlier estimate, while others, also of high standing, derive totally different results from the same evidence, may not a mere observer, seeking only the truth, shake his head and doubt them all? This also indicates the lack of persuasiveness of



HEIDELBERG JAW AS FOUND
(from Men of Old Stone Age, p. 98)

ARTIST'S DRAWING OF HEIDELBERG MAN
(from Men of Old Stone Age, p. 101)

the evidence to the very same mind. For Doctor Osborn, after thirty years of study, now decides that he has been all that time,—his most active period of investigation,—misunderstanding or misconstruing this piece of evidence, and giving it weight which he now thinks it does not deserve. Dr. Arthur Smith Woodward, a very distinguished investigator, also has his doubts. He says of this fossil in Creation by Evolution, p. 134:

"Some authorities regard Pithecanthropus as an overgrown gibbon; others believe it belongs to the same family as man. Better specimens are needed to determine exactly its relationships."

May not others justly hesitate and doubt also. The Java Ape Man, being "built up," as it were, from scattered fragments selected out of an assortment of bones, and being also in such serious doubt among scientists, cannot be regarded as significant evidence of anything pertinent here.

(2) *The Heidelberg Man.*

The next find said to be characteristic, and to constitute evidence of man's pre-human existence, is called Homo Heidelbergensis, (dated as of a period which Professor Kellogg estimates at four hundred thousand years ago, (Evolution, p. 229). In this case the whole find consisted of a lower jaw, with the teeth. It is shown in a cut opposite this page. We may judge from this whether, by any acceptable test, there is evidence either of its age, verity, or authenticity. Of this jaw Professor Osborn says, (Men of the Old Stone Age, p. 98):

"From a fragment of the symphysis of the jaw it might well have been classed as some gorilla-like anthropoid, while the ascending ramus resembles that of some large variety of gibbon."

The teeth alone are regarded as appearing to be human, though quite small for the size of the jaw. This find also has been expanded by an accommodating artist into a massive head, having quite a human appearance, in which the only feature not imaginary is the jaw, and the character of that is greatly improved by fitting it out with heavy overhanging lips, and adorning it with side whiskers. This of course adds nothing to its evidentiary value, for it is the jaw alone which can be regarded as pertinent, and its weight as evidence will be *nil* unless its age, its human character, and its relation to other bones of head or body, and also its relation to other fossils of earlier or later date can be known or fairly inferred. Unless there is something significant with which it can be compared it cannot aid us in judging whether advances were being made toward fully developed man. It stands alone. But if so trifling an item could teach us anything dependable about the history of humanity this particular fragment, in view of the surrounding facts, cannot. We have already quoted from Professor Osborn the opinion that bones of this character drifted in river and stream beds for some distance, and were then buried accidentally with the bones of extinct animals. Whether this occurred in this instance or not, it remains true that it is accompanied by no circum-

stance which can possibly increase its individual weight as evidence; and without comparison it proves nothing, at least as to development.

In the Heidelberg case, as in that of the Ape Man, the facts of locality and surroundings, though vital, (as establishing dating and age), seem to be lamentably misconceived. Professor Newman says of it:

"It is based upon a single jaw in an excellent state of preservation, with all teeth in place. The strong points about this find are first that it was found in a stratum whose age had been well established; and second, that its discoverer ranks among the leading experts in the field."

As to the place and circumstances of the discovery the particulars given in the authentic books mentioned above are to the contrary. Assuming them to be correct, they show that this jaw was *not* found "in a stratum whose age had been well established," but in a gravel bed, which had been in course of excavation for many years, and on a level with an adjacent river. Osborn said of it, (Men of the Old Stone Age, p. 98):

"The jaw had evidently drifted down with the river sands, and had become separated from the skull."

It plainly belongs in the general class referred to by Professor Osborn, as quoted above.

Dr. Osborn, Man Rises to Parnassus, pp. 87, 88, now places the so-called Heidelberg man back in history some nine hundred thousand years, and makes him one of the "first comers" of the Neanderthals. In his former book he placed the Neanderthal beginnings at one hundred thousand B. C.,

(see reference elsewhere). The addition of eight hundred thousand years to their residence in the world seems to Dr. Osborn now to be justified by the same evidence as his former low estimate. Thus the world is invited to accept a theory, though only of antiquity, based on evidence which proves nothing definite or convincing, even to its leading proponents.

Aside from its other inadequacies as evidence bearing on the origin and history of humanity, the circumstance that it was found in Europe and the Java Ape Man in Asia is enough to show that it can prove nothing on the subject of *succession*, which is of the essence of the present inquiry. And even if contiguity were proven there are other obstacles. Two skilled investigators, Dr. Osborn and Dr. Lull,—among the most highly regarded of their time,—can find no evidence to prove which was first in order of succession,—one locating the Ape Man first, and the other the Heidelberg, and differ by many hundred thousand years about their dating. Thus no comparison can be made, to prove progression toward humanity. The Heidelberg man stands alone, and furnishes no support for the theory. Not only so, but, as we have seen, it is ranked racially with the Neanderthals, who were never in the human line of descent.

(3) *The Piltdown Man.*

The third find, assumed to be typical and characteristic, is called "Eoanthropus Dawsoni," usually designated as the Piltdown Man. This find

consisted of fragments of one or more skulls gathered out of refuse heaps, partly by a workman and partly by the gentleman whose name it bears, —a lawyer by profession, though by taste and cultivation an antiquarian. They were not in contact, nor found at the same time. Several years elapsed between the finding of the first and last of the bones which are correlated to form this exhibit. The particulars are recited in Mr. Dawson's own language in Sir Arthur Keith's book on The Antiquity of Man, p. 491. These bones are shown in a cut inserted opposite page 656. The right half of the lower jaw with two teeth was dug out of a sand bank near by, but not at the same time with the other items. Nine fragments of a skull, picked out of this gravel bed or from refuse heaps near by, with the broken jaw, were skilfully fitted together by an expert, but it is said in MacCurdy's book on Human Origins, Vol. 1, p. 334, that he had difficulty in the matter of articulation. The result leaves many of those who have examined it unsatisfied, and the opinion prevails that while fragments of the upper skull appear to be human the jaw is that of an ape; (see the discussion in Human Origins, MacCurdy, Vol. 1, pp. 323–325); there the author warningly says, (p. 334):

"In dealing with the contents of a gravel bed it is easy to overestimate the importance of proximity. . . . There is abundant opportunity for chance association. In any event association can never be made to take the place of articulation."

The items comprising this find are among those specially mentioned by Professor Osborn in the passage quoted above as having drifted into the position where they were found in flowing streams, and accidentally buried with the bones of extinct animals. He (Men of the Old Stone Age, p. 132) uses this language:

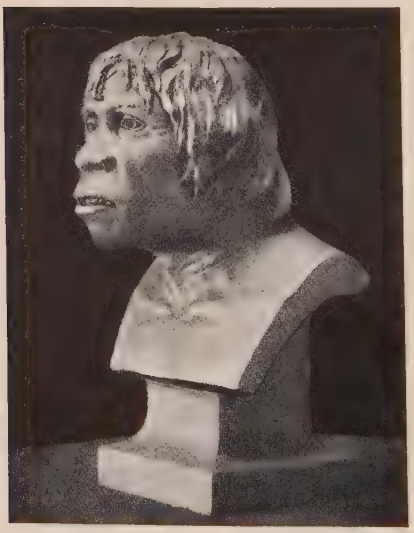
"The section of the gravel bed indicates that the remains of the Piltdown Man were washed down with other fossils by a shallow stream charged with dark brown gravel and unmarked flints."

Professor Osborn said of this restoration (Men of the Old Stone Age, p. 144, 1924,—latest edition):

"Very recently the jaw of the Piltdown Man has been re-examined, and referred by more than one expert to a fully developed adult chimpanzee."

This, from such a source, should be well-nigh conclusive; but here again Dr. Osborn, after adhering for more than thirty years to the views expressed above, now convinces himself, *on the same evidence*, that this aggregation of scattered fragments did belong to the same individual. He also sets it back in date more than a million years, p. 24, Man Rises to Parnassus. He purports to found this reversed opinion chiefly in the discovery of the remains of a "second Piltdown man." But this states the new discovery much too broadly. The second find, as described by him on page 59, consisted only of (1) a lower molar tooth; (2) a bit of bone of the forehead near the right eyebrow; (3) the middle part of an occipital bone

Piltdown Fragments as Found: Cranium and Lower Jaw
(*from Human Origins, p. 326*)



Artist's Drawing of Piltdown Man
(*from Men of Old Stone Age, p. 145*)

of the skull. These fragments, it is to be noted, do not in any way eke out or enlarge the information we already have of the Piltdown man, but are assumed to furnish evidence of the existence and characteristics of another individual,—all constructed by the distinguished Doctor out of these fragments, which he himself calls "minute." They were found about ten years later, some two miles distant from the point of the earlier discovery; and of course they did not, (unless the tooth), affect in the least the lower jaw, which Dr. Osborn had earlier said was found to belong to a chimpanzee. Here also the artist, with his skilled but too partisan pencil, and his eager imagination fairly "champing the bit," has produced a *rather* human looking picture, in which the parts lacking are supplied to produce the desired result, and the defects in adaptation between the skull fragments and the jaw fragments are entirely obscured by fleshy cheeks and ample hair. This drawing is also reproduced in some authoritative books on evolution, and constitutes with many superficial readers evidence that prehistoric man is here reliably indicated. A comparison between the fragments found and the restoration may be made by a glance at the cuts facing this page.

The Piltdown fragments were found in England, an immense distance in time from the others, as is supposed, and nothing is suggested to link them in with any chain of fragments,—man or beast. For every purpose therefore these signify nothing on the question of progressive develop-

ment, which is our present point, and must be discarded.

For other reasons also this individual, if such he may be called, has no bearing on our query, even so far as we can reproduce him; these are partly because of the doubts about his authenticity, partly because of his isolation, and partly because of the conviction of his sponsors that he was never in the line of human descent. Dr. Lull says, (Ways of Life, p. 282):

"It (Piltdown) is again supposed to represent a lateral descent line arising near the stock of the modern line, *but one which died without issue.*"

(4) *The Broken Hill Man.*

Another skeletal find, in this chain of proof, consists of remains discovered at Broken Hill, Rhodesia. These are dealt with by many leading writers as material links in the chain of evidence. Sir Arthur Keith, in the newest edition of his work, The Antiquity of Man (1925), devotes an entire chapter (40 pages) to it, but he has certainly overlooked the more than doubtful features attending this discovery, as related in contemporary articles. These bones were found in 1921 in a cave filled with masses of animal bones and other debris. That they are entitled to no weight as evidence is shown by the circumstances of their discovery. It was described in the *Atlantic Monthly* of 1922, p. 454, by Prof. G. Elliott Smith, who is referred to by Dr. MacCurdy as "a very high authority on the human mind," and who

took an active part in the examination and classification of the Piltdown fragments. After describing the Broken Hill remains, he said:

"If it were not for the fact that originally there had been a cleft in the roof of the cave, just above the place where the skull was found, we might have drawn the conclusion," etc., etc. "But the cleft does leave open the possibility of the human being having fallen into the cave at a more recent period."

We do not understand the word "human" in that connection to mean more than that the author was disposed to treat them as such, notwithstanding the doubts he evidently felt. Describing the bones, he says they consisted of "an almost complete skull, without the lower jaw, a sacral bone and tibia, and the two ends of a femur." Characterizing this skull, Professor Smith says:

"The enormous eye-brow ridges are bigger even than those of the most archaic member of the Java Ape Man, and in the extent and form of their lateral extension the condition found in man's most simian relative, the gorilla."

The mental attitude which led Professor Smith nevertheless to proclaim them human is not stated. Perhaps prejudgment was a part of the argument. The conceded facts, however, leave these bones subject to such a doubt as to authenticity, as well as age, as to eliminate them as evidence, under settled rules. Of similar misadventures in this field of inference Professor MacCurdy says, (p. 333), "Nature has set many a trap for the scientist": Professor Keith, in "Antiquity of Man," pp. 379 and 380, says, of the contents of

the cave where these bones were found, that it contained "hundreds of tons" of bones, which were being dug out for lime.

Dr. J. Arthur Thomson points out the futility of this exhibit, in "What is Man," p. 17:

> "It should be noted that the skull is not fossilized, and that the associated animal remains are *those of living species.*"

There are also illustrations of the feeble nature of conclusions in this field arising currently, and some are of a character which might be expected to check the enthusiasm of those who find so easily a basis for their faith. A very recent case is reported in the newspapers of the day in respect to a tooth found in 1922 in an ancient river bed in Nebraska, supposed until now to prove the existence of pre-historic man in America. The names of a number of eminent scientists and scientific organizations said to have accepted it as genuine are given, but these are not mentioned here, because it would seem ungracious, and also because the names and details are not yet official. It has been learned, the dispatches now state, that a number of similar teeth have just been found in association with the remains of *an ordinary pig.* Whether in all respects authentic or not, this will fairly illustrate the sound basis of Dr. MacCurdy's warning.

The period of time covered by the foregoing early instances, comprising the whole paleontological evidence supporting the theory of human development from the dating of the earliest fossil

to the period of the Neanderthal mentioned below, is estimated by Professor Kellogg at about four hundred thousand years ago; and this is, the time stated as prehistoric by H. G. Wells in his Outline of History. Dr. Osborn now puts it, p. 24, at about a million years. The time elapsed between the dates of the several examples must then, if averaged, be more than three thousand centuries. This would be, for each hiatus, fifty times the whole period of recorded history, from Adam down, by Ussher's computation, or five thousand generations at two to a century. Yet these are the instances chiefly relied on to prove, or help to prove, the *development* of man from amoeba.

If they were in fact closer together, which cannot be known, they would be even more unconvincing by reason of the immense period intervening between the latest of these and the next significant event, which would be the appearance of the Neanderthal, if Dr. Lull locates him correctly in time. But Dr. Osborn, in his newest book, mentioned above, complicates the course of events heretofore agreed upon among scientists by placing the origin of the Neanderthal nearly a million years earlier, (p. 24): the Piltdown Man, (he of the Chimpanzee jaw), six hundred thousand years further back; the Heidelberg second; the Ape Man third,—(about the middle of the Old Stone Age, —page 83); omitting the Rhodesian Exhibit. The effort to visualize these periods, coupled with a moderate amount of reflection on the character of the exhibits themselves, with the expressed doubts

of scholars as to the verity of either the fossils or the dating, indicate the unconvincing character of the case thus far made, either for the antiquity of man or to prove that he evolved from any earlier form. If, however, these instances are authentic, and regarded as a definite means of tracing back man's descent, yet they reach no more than one-fourth of the earth's history of life, as tabulated by Prof. Osborn; when computed by Dr. Lull's estimate of dating of the earliest a much smaller fraction. But what of the rest?

CHAPTER VIII

The Neanderthal

It is intended here to show that the supposed Neanderthal is outside the line of tenable argument, for several reasons, (a) he is not supposed by any competent scientist to be in the chain of human descent; (b) he was not of human character, nor on the way; (c) the flints he is supposed to have made existed before he did; and other convincing reasons.

CHAPTER VIII

The Neanderthal

Few things have more impressed this writer with the futility of the argument for the evolution of man than the seriousness with which the history of the Neanderthal is pressed as an element bearing on the question, and the industry with which researches into his fossil history have been prosecuted. No evidence indicates that the first example of that race had any predecessor in the human line of descent; and it is admitted by every scholar writing on the subject that they, be they apes or men, *had become extinct*, either before or by reason of the arrival of the Cro-Magnon, (most say long before), and left no successors, in lineage or type. It is beyond dispute that they were not in the human line at the beginning, middle or end. Even a layman may, it would seem, draw a tenable inference from that. Dr. Fay Cooper Cole says of the Cro-Magnon, (Nature of the World and of Man, p. 357), that "there is no reason whatever to consider him as a development of, or closely related to Neanderthal man." What difference would it make then to any theory of origin or descent affecting the present, even if they closely resembled humanity, (which it seems clear they did not). Some one must tell us why the story of a life so manifestly outside the question should be

stressed as significant. Some writers on the subject are very dull, and may be forgiven on that account; but of those who are acute, and know its remoteness, but still use it knowing it may mislead, it can at least be said that they are uncandid, which in a scientist is a cardinal fault.

Writers such as Sir Arthur Keith, whose special subject is the *antiquity* of the human race, as distinguished from its development, have a reason for such an investigation. It pertains perhaps—though it seems but incidentally—to that subject. Even there it could not matter. In the biography of any significant personality a labored search into the origin and history of an imaginary relative, altogether inferential, long since deceased, and leaving no descendants, would avail nothing which ought to signify; still less if there had never been a point of contact. Yet most of the writers,—including some profound and able students,—pursue the details of the so-called Neanderthal with immense care and labor. Why? Considering the admitted facts, that story, from the point of view of a layman, has no more to do with the development of humanity from protoplasm than the life and times of the Dodo. We have then three hundred and fifty thousand years of time, at the minimum, between the Heidelberg Man and the Cro-Magnon, in which there is nothing factual in history bearing on the origin of humanity unless it be the fragmentary fossils,—four in all—mentioned above, two of which, at least, were themselves Neanderthals, and therefore outside the field of

inquiry. These are all widely doubted, both as to their verity and their significance. Moreover they were found in four widely separated sections of the earth, and could have no link of succession, and no mutual relation. These could, it seems, teach us nothing reliable, either about origin or descent.

While this is being written it is recorded that one of the largest and most enterprising of the museums of this country is installing a "superb" exhibit representing the Neanderthal and his surroundings, as its Director and his artists imagine him. This is not done, it is said, merely for its beauty and interest, but for the instruction of the school children, who are invited to view it. It purports to represent the "cave man," as he was. A supposed original Neanderthal skull, and a "restored" skeleton, are used as part of the materials.

It is hard to see what the children can learn from it which could add to their store of useful knowledge.

But because we may be wrong in deeming this immaterial, and also because it is almost universally treated as pertinent to the argument, we proceed to consider how essentially insignificant is the story of that race.

The Neanderthal Remains.

With the first so-called Neanderthal fossil is usually coupled a single skull found in a cave in Gibraltar, assumed to be of the same race, and likewise human and ancient, but about which nothing whatever is known. For reliable informa-

tion it would be of as much value if picked up in the street. The first remains designated as being of the Neanderthal race consist of a cranial cap, two femora, two humeri and ulna, right radius, left half of pelvis, a fragment of scapula and remnants of five ribs. Other skeletons or remains, discovered later, are usually considered together as racial characteristics. Professor MacCurdy, in his summing up as to this supposed race, says (p. 372):

"An ensemble of anthropoid characters distinguishes the Mousterian skull from that of any primitive race now living."

He means to say that these bones, especially skulls, more nearly suggest the anthropoid than the lowest subsisting race of human beings. But even if we do not correctly apprehend him, it is plain that, standing alone, and proving only what can be discerned from them, they more nearly prove the reverse of the proposition for which they are offered. They are supposed to prove, or help to prove, that mankind, as it now is, came through a line descending from an ancestor common to both, and that he, when ascertained, will be shown to be himself of a lower order, but also in turn superior to his own ancestry; and thus until the line reaches back progressively in lower and lower orders to the original cell. On the contrary, judged by the weight of expert opinion, as it now is, it is easier to infer that the earliest examples were the *best developed;* but even on this point we have no adequate knowledge.

The supposed Neanderthal fossil means nothing instructive if standing alone, or if followed later by a chain of others *inferior*, or even equal, to himself. If the first Neanderthal was not shown to be *superior*, in kind and character, to his own predecessors, and *inferior* to those coming after him, which is the essence of the question of development, his bones prove nothing pertinent here. With what shall this comparison be made? He had no predecessors, so far as known, unless the four whose fragmentary bones, scattered over a period of four hundred thousand to a million years, are discussed above; but one of those was in Africa, and one in Java. The Piltdown fragments were found in England and the Heidelberg jaw in Germany. With the first Neanderthal link, therefore, we are shown nothing earlier with which we can make comparison. Nor is that earlier line, if such there was, either ascertained or described. This we believe to be beyond dispute. Dr. Lull (Creation by Evolution, p. 267) says:

"What lies back of our own species is still unrevealed."

If, however, having no others with which to compare the Neanderthal fossil, we venture a comparison with humanity, as to physique alone, we are impressed with the inconsistent fact that this creature, as the bones indicate, crouched, and did not and could not stand erect; that his thumbs and fingers were not opposed, as in man, which is essential to manipulation; and that his feet were typically apelike, (Men of the Old Stone Age, p.

243); and this is equally true of the later discoveries. Doctor Osborn, in "Man Rises to Parnassus," p. 214, says that "all arboreal mammals are practically thumbless." Our own disposition would be to connect these facts, and deduce a result. But evidently this would not be scientific, and the result would not fit the learned Doctor's conclusion. From his new point of view he is arguing that man and the apes are quite distinct. However this may be, no development or advancement of any kind is shown, from the first Neanderthal to the last, taking the order of discovery to be their proper dating. But this is not known. Nor would there be any marked or instructive distinction if arranged in any different order. How then can we compare them to assure ourselves whether they indicate humanity *in course of development?* Might they not even be static, or perhaps reversed, as many are conceded to be. But though it is not contended that these were in fact our ancestors, nor otherwise in close relation with us, their story is much stressed, and must be examined.

After discussing the jaw and teeth of the characteristic Neanderthal skull, Professor Osborn, Men of the Old Stone Age, says (p. 226):

"This special feature alone would exclude the Neanderthals from the ancestry of the higher races."

MacCurdy says, (Human Origins), p. 313:

"Even the monogenist must admit that Homo Neanderthalis is a separate species from Homo Sapiens."

In this the scientists all agree. "There is none so poor to do him reverence." Vivid language is

that of Professor G. Elliott Smith in the *Atlantic* article (1922), mentioned above, referring to the Rhodesian skull, as follows:

"The merging of the nose in the face to form what in other animals would be called a snout, is a peculiarly significant mark of the beast, which is known elsewhere in the human family only in the extinct fossil species from Europe known as the Neanderthal man."

Osborn, Men of the Old Stone Age, (p. 234), quotes Beale as saying:

"What seems quite certain is that . . . there is no recent type which can be considered even as a modified descendant of the Neanderthals."

And again (p. 272), as to character, he says:

"No trace of artistic instinct whatever has been found in the Neanderthal."

Professor MacCurdy says (p. 209):

"There spread over the greater part of Europe the primitive Neanderthal race, of coarse mental and physical fibre, in whose breast the artistic impulse throbbed but feebly. This race contributed nothing, in fact, save utilitarian artifacts."

Dr. Simpson, in his book, p. 106, says that the Neanderthal man

"almost certainly diverged into a line which ended with itself, and did not develop into any modern race."

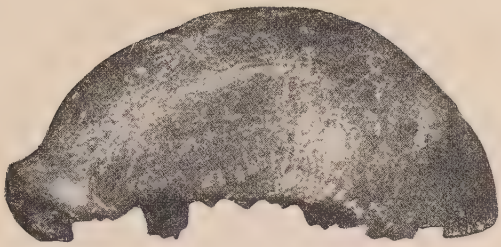
Dr. R. S. Lull, (Creation by Evolution, p. 267), says:

"Heidelberg Man and his lineal successor, the man of Neanderthal, constitute the first and last link of another chain, whose slow change is unrecorded for three hundred and fifty thousand years. *But these forms are evidently not in the line that led to modern man.*"

Yet among the illustrations elsewhere alluded to, and widely reproduced, is one which represents the Neanderthal as a human being, of somewhat striking aspect. At least it may be said of this, as of the others of like kind, that it is misleading. As to the extent to which, even among the skilled experts, imagination supplies the place of facts, the reader can judge by comparing a photograph from Dr. Osborn's book, of the skull fragment as originally found, (see opposite page), with the accompanying artist's conception of the being it represents:

The Neanderthal did not create "domestic artifacts."

The detailed characteristics from which the supposed relation of the Neanderthal to humanity is inferred by the experts seem to the writer less significant than one isolated fact, which is not alluded to by the books in that connection. It is claimed that he exhibited a measure of intelligence and skill with his hands which might indicate kinship with humanity, though of low degree. Nothing of this kind is suggested other than the flaking of flints, called in many places "domestic artifacts," the bearing of which is discussed below. The consensus of opinion that he gave no other indication of mental capacity or manual dexterity has been shown by many quotations elsewhere. Since no other evidence of capacity, of brain or hand, appears in the story of his drab existence it is plain that if this also is found to be



NEANDERTHAL SKULL AS FOUND
(*from Men of Old Stone Age, p. 217*)

ARTIST'S DRAWING OF NEANDERTHAL
(*from Men of Old Stone Age, p. 203*)

misapprehended, so that his physical frame stands alone, evidence of his kinship with humanity would be altogether lacking. The inconsistent fact now suggested bears on the question whether he ever made "domestic artifacts," or had any occasion to do so. On the assumption that he was a slayer and a *meat eater* the supposed "artifacts," —treated by most writers as conclusive evidence of human characteristics,—are deemed the work of his hands. These consist of different forms of flaked flint. Those forms, which are supposed to be of intelligent construction, are held, for that reason alone, to justify an inference of skill and mentality. Others controvert this, for reasons mentioned below. In any event, the articles deemed "artifacts" were capable of use, if at all, only with the handling of the flesh or bones or skins of animals. Their existence, as works of the Neanderthal, is inferred from his supposed need of them. If he had no such need then the inference of capacity built around that need must fall of its own weight. The flint utensils he is said to have made and used would be of no service unless he was carnivorous. This is true also of the broken bones he is said to have cracked in search of food; of the bones covered with meat he is said to have laid in the graves of the dead; of the skins he is said to have scraped and wrought, etc., etc. If he was not a meat eater, these inferences are evidently erroneous. His physique must then stand alone, and it controverts the contention that he was human.

The Neanderthal, it now appears, was *not* a

meat eater. His teeth show that he was a vegetarian. Experts have given us the facts in the following terms. Professor Newman says, (Gist of Evolution, p. 91):

"The teeth (of the Neanderthal) are quite different in structure from those of the present man, and are known as taurodont teeth, adapted for very coarse vegetable diet."

Sir Arthur Keith (Antiquity of Man, Vol. 1, p. 326) discusses the teeth in detail, and says:

"The peculiar adaptation of the Neanderthal teeth,—their wide crowns, large bodies, short roots, and the wide and relatively short dental arch, all point to a rough vegetable diet, necessitating a grinding rather than a cutting manner of masticating."

And again he says (p. 215):

"The Neanderthal teeth, in the writer's opinion, are of the type seen in herbivorous animals."

Dr. MacCurdy (p. 308) uses this illuminating language:

"The food of apes consists chiefly of tender branches, gnats, eggs and insects."

Dr. Osborn, (Men of Old Stone Age), p. 225, not controverting the shape and character of the teeth, as above described, deemed them adapted to eating "tough food,"—whatever that may mean. And he adds that the roots of the grinding teeth,

"instead of tapering to a point below, as in modern man, form a broad, stout column, supporting the crown, adapted to a sweeping motion of the jaw."

Dr. Simpson says (p. 112):

"In the case of the very distinctive Neanderthal type of tooth, as also the size of the tooth and the width of the palate, lead Keith, Vlaatch, Brule and other authorities to speak of Neanderthal .... as 'a distinct and extinct species of man,' *perhaps also a vegetarian.*"

Dr. Lull says:—

"The teeth are of the taurodont character defined above, large of pulp and short of root, again an adaption, according to Keith, to a coarse vegetable diet."

This, if true, meets and answers the inference that the flaked flints were the result of hand labor. A single inconsistent fact may overturn a theory. For example, note the nebular hypothesis of La Place, who deemed the planets of our solar system to have been thrown off in rings, all turning in one direction and in one plane. A single star with a reverse orbit would refute it *in toto*. Since the teeth of the Neanderthal were those of an ox, or of an ape,—a plant eater,—the labored inferences of skill of hand or brain to satisfy his supposed demand for flesh fall of their own weight; and his body being that of an ape his supposed relationship to man can be no more than fanciful.

The "chipped flints" were not hand made.

But if he were a meat eater it does not follow that the Neanderthal either could or did shape the flints which are found in such vast numbers in many parts of Europe. Except for the flints themselves no particle of evidence exists to show that the splitting was done by hand; still less that the

Neanderthal had either the intelligence or skill to bring it about. The whole argument is set up by juxtaposition; i.e.

(a) The so-called Neanderthal; (b) the flaked flints; (c) the inference that the Neanderthal made the flints. If this does not follow, then, by the evidence of the experts themselves, the supposed race did nothing and made nothing to indicate the possession of the least intelligence. To this writer the inference thus suggested, even if not controverted by known facts, would be untenable, for these reasons:

(1) The *dating* of the flint deposits, and of the shapes supposed to be of human workmanship, is likely to be erroneous. The discovered errors in dating are many, and these also may belong, as practically every other product of art and skill has been found to be, within or since the period of the Cro-Magnon, who admittedly had the skill to make them, and had a reason for their use.

(2) The supposed deliberate shaping of flints may be only accidental, by alternations of climate, quake, torrent, or glacier. Others were, why not these?

(3) The same flint shapes have been often found in masses of mere slate, unshapen, and this suggests that the few seeming to be the result of intelligence are as accidental as the rest.

(4) MacCurdy argues that some of them were made by hand, but says, (Human Origins, p. 87):

"In the opinion of Mayat the Miocene chipped flints may be accounted for through natural causes, without invoking the interposition of man or his precursor."

Ibid., p. 101:

"It is evident that some of the ear-marks hitherto looked upon as evidence of intentional chipping may be counterfeited by nature."

Ibid., p. 102:

"The discoveries at Boucelles and Bellos Assias have emphasized the difficulty of distinguishing between forms intentionally chipped and utilized, and natural and non-utilized forms."

(5) In an article on "Archaeology," Encyclopædia Britannica (11th ed.), p. 345, referring to the evidence drawn from flints said to be chipped, the author says:

"It was observed that in the processes of cement manufacture the flints that had passed through a rotary machine in which they were violently struck by its teeth, or nicked against each other, possessed such features as were claimed as indisputable proof of man's handiwork, and that even the forms were the same."

(6) Dr. MacCurdy, in Human Origins, p. 327, says:

"We may justly differ on the question whether a given flint is an artifact."

(7) Dr. Simpson, in Man and the Attainment of Immortality, p. 84, believes the Neanderthals were really on the way to humanity, but does not believe they shaped the flints. He says:

"It is the sounder method to adjudge them (flints) natural objects"—

also

"the extraordinary difficulty in imagining any use within reason to which these objects could be put, all tend to suggest that the more probable explanation of the evidence produced to date lies in the working of non-human causes."

In view of the language just quoted it is remarkable that Dr. Simpson is quoted by Dr. J. Arthur Thomson (Science, Old and New, p. 385) as an authority supporting the contrary view. We cannot regard Dr. Simpson as always consistent, but his express affirmation on this point ought to convince Dr. Thomson. We, at least, feel bound to take Dr. Simpson's word for his own convictions.

(8) Beale, quoted in Men of the Old Stone Age, p. 84, said:

"As to the eoliths, (the earlier name by which these were known), I have combatted the theory not only because it seems to me improbable, but because a long geological experience has shown me that it is often impossible to distinguish stones split, cut or retouched by purely physical agents from certain products of rudimentary workmanship."

Here then, we have occasion again to apply our rule of prudence that when the experts are not convinced laymen should take an assertion of fact to be not proven. It seems clear, even on a comparison of probabilities, that no creature whose thumbs are not opposed is capable of manipulating flints, or of cutting them into shape, or even of using them when made. This conflicts with common apprehension. An ape cannot do

it now. Further, the immense numbers of such flints found, (7,000 in one place, 25,000 at another place, and great numbers elsewhere recorded), indicate some other cause, even if mechanical capacity and intelligence were adequate. These immense quantities, if produced by labor, are only consistent with factory production on a commercial basis. This would strain credulity to the breaking point. Yet Sir Arthur Keith, (Antiquity of Man, p. 238), goes even that far in one of his gushes of enthusiasm. He says:

"The flint works seem more extensive than the needs of a family or of a local tribe demand; we seem here to have struck a factory for the manufacture and export of Acheulian implements."

The chipped flints existed before the Neanderthal did.

In addition to the argument from opposing or inconsistent facts we cannot overlook the anachronisms which are apparent in the argument from supposed "artifacts." So many writers have drawn their chief arguments for the antiquity of man from the flaked flints that the *non sequitur* involved should be pointed out, at the risk of appearing prolix. Some of the best of the supposed human "artifacts," regarded as indicating skill, and therefore especially weighty as evidence of human intelligence and skill, *preceded* by immense periods the coming of the Neanderthal. In their supposed order of precedence, they are described in the books as "Eolithic," "Pre-Chel-

lean," "Chellean," etc. Prof. Kellogg says of them, (Evolution, p. 23):

"Some of the flaked flints have been found under conditions which seem to prove them older than any human fossils yet discovered."

Dr. Simpson (p. 83), says of these early eoliths, —"they constitute, if artifacts, the sole evidence for tertiary man." Unless these prove themselves, as well as their age, and also their human origin, which is the point we are considering,—there is not the least evidence of the existence at that period of any living creature above the animal. The "Rhodesian Man" was found in Africa, and the flints were in Europe. The Java fragments were found in Asia. The Heidelberg jaw is dated too far back to fill this gap, if it otherwise could. Thus nothing remains to account for the earlier flints unless the Piltdown fossil fragments, both the authenticity and age of which are in dispute. Even if we might infer skill in handicraft from living man *plus* existing flints, it is going a long way to infer the men from the flints. Since the earlier flints, esteemed also the better, and therefore the more likely to be hand wrought, came into existence with no human beings to flake them into shape, why may we not more reasonably assume that nature, without human aid, formed the later ones, since beyond doubt she formed the earlier?

The argument for the humanity of the Neanderthal, inferred from the flints, runs in a circle, thus: —the existence of the flints proves the existence of men, or man-like animals, which is the point in

question. Conversely, the existence of men, with assumed capacity to make them, and an assumed need of them, proves that the flints were of human manufacture; and this again proves the existence of the men. Thus we go round and round, and each alternative assumes the point to be proved.

The Neanderthals did not bury their dead.

It is said by some, who assert it as evidence of human quality, that there was among the Neanderthals a practice of respectful burial of the dead. This would be of some importance if true, but the only evidence to support it arises from the position of certain skeleton remains when found. This is circumstantial, and does not fall within the admissible limits of that kind of proof, for the instances suggested are few; and if they admitted of such a construction they would conflict with the general habit of those creatures, which seems clear to the contrary; but even in the specified cases the facts do not sustain the inference. For example, Professor Osborn judges one to be a "ceremonial burial" because the skeleton lay straight out,—east and west,—"in a small natural depression." (Men of Old Stone Age, p. 223.) Another he supposes to be a "special ceremonial burial" because it was *not* "laid east and west," nor even "straight out," but "in a crouched or flexed position," (p. 221). Whether one or the other, or whether a burial at all, is inferential, and in this writer's opinion neither is proved. Such also is the opinion of Dr. Newman,

who says in Gist of Evolution, p. 207, that "it is not so certain that there is warrant for the statement often made that Neanderthal Man buried his dead reverently." When these instances are compared with burials by the Cro-Magnons, as shown, illustrated by photographs and drawings, by the same authors, it can be seen how readily a real burial may be identified. That there was no habit of burial appears also from the fact that many of the bones recovered were found in caves, mingled with animal bones. Such was the case of the intermingled bones mentioned above, in several instances. So it was in the case of the Rhodesian bones. Sir Arthur Keith, (Antiquity of Man, p. 187), says:—quoting from Professor Schaafhausen,—

"Whether the cavern in which they were found, unaccompanied with any trace of human art, was the place of their interment, or whether, like the bones of extinct animals elsewhere, they had been washed into it, they may still be regarded as the most ancient memorial of the early inhabitants of Europe."

It is also evident from the details of description in the authoritative works that in many cases the skeletons were dug out or gathered up where they fell. The issue is too important to rest on mere inference. In the ordinary affairs of life this would not be regarded as even falling within the range of evidence, because every instance, to be available, must comprise a series of links, each vital to the result, of none of which there is any proof at all; for example in most instances animal bones

were found in juxtaposition. Is there a presumption of respectful burial as to them also? If not why not? A thoughtful reading of the facts attending the several discoveries, as above cited, will make it unnecessary to here mention further illustrations.

The dream of the philosopher.

The human disposition to see as real the things one strongly desires is illustrated in an extract from Man and the Attainment of Immortality. This writer finds entertainment in that picture of life in a period so ancient that, in the total absence of supporting evidence, only a highly developed imagination, tinctured with a rather artificial type of "other-worldliness," could have visioned it. The author is a distinguished university professor, with perhaps a predilection for poetry, and possibly even for fiction. He develops considerable adaptation for both in his description of a group of Neanderthals, after a hard day's hunt, (p. 117), chatting together as they sat beside the fire and ate their cooked meat, even about such high themes as the condition of their predecessors in the other world. Quoting from one Macalister, he says:

"The survivors would ask one another the question of questions—'If a man die, shall he live again?' As they sat around the fire and discussed the momentous problem one would tell of a dream that he had had, in which the dead had appeared to him. . . . With the weird dancing shadows cast by the fire on the rocky wall of their cave, with the wild noises of nocturnal nature around them,

small wonder if they found to their question an affirmative answer."

Yet the same author has on earlier pages, (110, 111), described the Neanderthal as only in a slight degree approaching manhood, and as

"in almost every respect more primitive than modern man;"

"He presents physical differences from modern man greater than the difference between the most divergent of modern human races;"

again

"He probably progressed with something between a crouch and a slouch."

Thus the distinguished author pictures an animal, but has him sing like a poet. For flight of fancy the author of Tarzan of the Apes has still, it seems, something to learn.

Dr. Simpson also assumes that the Neanderthal could and did speak. Of this there is no evidence whatever. No investigator has found the least indication, so far as this writer has learned, on which such an opinion could be founded, beyond the scorings on certain skulls.

And his assumption that they had fire is without authority. There is nothing to indicate their knowledge of the uses of fire, or how to produce it. There was lightning, and of course forest fires, and their results in charred wood and otherwise, but it is a broad leap in logic, if anything more than a flight of fancy, to infer from these all the elements, as well as the total picture. The making and use of fire implies capacity to imitate producing causes; it requires an intelligent mind and

reasonably nimble hands. It is not contended, on any evidence, that these creatures had either. Scattered fragments of wood and bone supposed to have been burned are by some relied upon as proof, but these would be hard to identify after being buried so long. They may well have originated in the days of the capable Cro-Magnon, or they may be the result of forest fires or lightning.

Dr. MacCurdy discusses intelligently, in Human Origins, (Vol. 2, pp. 634, 635), the development of the use of fire:

"Primeval man saw and felt it before he had any knowledge of how to produce it. The terror of a forest fire was shared alike by man and beasts; such a fire might arise from the eruption of a volcano, a bolt of lightning, or the rubbing together of two branches kept in motion by the wind."

Thus even if seriously intended, this picture by Dr. Simpson rather indicates a lively imagination than a faculty for logic.

No physical advance toward manhood.

But even if the festivity he describes had a substantial basis, yet the proof of *development* of humanity, as distinguished from its *antiquity*, would not be advanced. The question being at this point one of development from lower forms of life during the period of the supposed Neanderthal, not only does nothing tend to prove it, but at least one undisputed circumstance seems to indicate the contrary. The first discovered skeleton of the Neanderthal is assigned to a time estimated at upwards of one hundred and fifty thousand years

ago, (by none less than fifty thousand years), and recently by Dr. Osgood at nine hundred thousand. That skeleton still continues to be the outstanding criterion of Neanderthal characteristics. With it subsequent discoveries of fossils supposed to be of that race are compared. There are no departures or differences except minor ones, without significance. The first discovery is like the rest. Dr. MacCurdy says, (Human Origins, p. 250):

"The Neanderthal race is better known through its skeletal and cultural remains than any race that preceded it. The type specimen from the Valley of Neander is only a fragmentary skeleton, but is now reinforced by a score of other finds, each confirming and supplementing the others."

Sir Arthur Keith, (Antiquity of Man, p. 160), and in other places, refers to this discovery as "classical."

That skeleton is therefore a proper standard for comparison. With this as a starting point, and remembering that paleontology, in respect to man, begins with the Neanderthal, (and on this point we must ignore the four disputed and widely distributed instances), we find that *nothing afterward discovered indicates an advance of any kind, physical or otherwise, in all the period the race is said to have survived.* If that race was in fact developing during that immense period there must be indications of it, but none are pointed out. No one claims that the Neanderthal was human, as the word is commonly understood, but only on the way to humanity,—a branch from the human

ancestral chain;—but he was developing upward if any one may. Yet these skeletons are essentially *alike*. It is impossible to tell, and no one seems to venture an assertion, which was earlier. The reproduction shown in the cut on a previous page is said to follow the typical skull, which was one of the oldest. Strangely enough this similarity is assumed to support the theory of development, but its weight is the other way. If the Neanderthal did *not* progress in that immense period, the inference must be that no creature was approaching humanity, and paleontology is not *for* that theory but against it. The Neanderthal was not even preceded by the four instances mentioned above, and there can be no comparison with the subsequent race of the Cro-Magnon, which is conceded to be of a different stock. Sir Arthur Keith says (Antiquity of Man, p. 199):

"The one thing we are now certain of is that he (Neanderthal) was not suddenly converted into the modern type of man."

The whole comparison must therefore be made among the units of the Neanderthal family, and since they, or their fossils or remains, furnish no evidence of development we can be assured that none occurred, and manifestly none has occurred since. That race faded away completely, and left no heirs and no assets.

The Neanderthal vanished.

Here then ends the story of the only race which could contribute bones or other relics bearing on

the origin of humanity. The next succeeding race was of a new type, higher even than man is now, and it did not develop from the Neanderthal. It will be best understood if a condensed story of that new race, and its nature and characteristics, as to which the scientists all agree, be introduced; and this will be done in Chapter XI, entitled "*A New Epoch: The Cro-Magnon Man.*"

This is not merely a shift of scenery. We have come upon a chasm so wide and deep that there is no communication. The story of the occupation of the world which we have been endeavoring to follow, vague and inferential as it is, is definitely broken. There is not a link to connect it with what succeeds. We must begin again on this side of that deep rift, and on a new level. Considering that there is at stake a theory of the universe, so far as its chief occupant is concerned, the break is positively startling. Every clue we have been following fades out, and we must start anew, with no *impedimenta* but our original hypothesis. The break could be no sharper or more complete if the last Neanderthal had died in the evening, and a new and superior race had arisen in the morning.

Another subject however must intervene. The next epoch being new, and humanity henceforth being on a plane higher than evolution could have anticipated, the place and period are appropriate for a review of the theory of descent we are examining in its practical aspects. When the Cro-Magnon shall arrive, and the way is clear for

life and experience like our own, the theory of development from a common ancestor will be no longer pertinent and significant as a present fact. It will have then become historical. Our main inquiry here has been whether, disregarding this, man *could* have reached the height he now occupies by natural descent, either grouped with other forms of life, or standing alone. The evidence on this point is claimed to be historical, as well as inferential. If this were so, and if the facts were reliably known, they ought to lead to a conclusion so clear that no argumentation could shake it; but here the most diligent research finds nothing reliable or definite. The known laws of nature, if the facts should be found to harmonize, might at least prove the theory possible, and this would be one step in advance; but conversely, if the laws and the evidence prove that the supposed mode of descent *can not* be true, then manifestly it *is not*. It is important to confirm or correct our own conclusions. In a due order of precedence this question ought to come before subsequent human history is considered, and therefore this will be the subject of our next chapter.

CHAPTER IX

The Long Ages; Where Was Man?

In this chapter an effort will be made to test the proposition that man was, during long periods of complete obscurity, developing from *nothing* definite into *something* definite; also to compare conditions said to be ascertainable, as of different stages, looking for evidence that he was on the way.

CHAPTER IX

The Long Ages; Where Was Man?

We have now examined the fossil history said to prove the gradual development of man, and have found it unconvincing. We have also considered the story of Neanderthal, and have found that race, for one thing, outside the line of human descent, and therefore not in point at all; and for another no more than beasts, and therefore proving nothing about humanity. We come next to examine the development theory itself, as it is formulated and set forth by those who believe in it, and present it to the world as a demonstration. We wish to know whether on its face it is tenable logically, and then whether it is confirmed by what we know, and by the laws of nature. It begins with the origin of living things, and includes man and the other beings in the long experience of development out of which they are said to have emerged. By that theory therefore, whatever is true of nature as a whole is true of man, and no separate conditions are asserted as to him. Certain outstanding features of the theory, which involve laws of nature and facts of common observation, but require no scientific learning to apply, may afford us simple tests of verity and assurance. These naturally precede other discussion, and ought to be considered first. We will begin with *continuity*, which is

vital to the theory, and easily compared with the facts. "Continuity," says Dr. J. Arthur Thomson, "is an essential part of the idea of evolution—a continuity of natural processes." No one has stated this more strongly than Dr. Conklin of Princeton, quoted on page 255. This is the principal theme of our present chapter.

A test which ought to be vivid as well as sound is to compare the events of the slow rise of living things, (including man), as depicted for us by the scientists, with the conditions which we would have a right to expect in view of the admitted laws of nature, which the theory not only admits but asserts, (page 275), were always the same as at present. All living nature must, if the hypothesis works, be governed by the same rules, both long ago and now; and yet it is evident that the facts as certified to us and the stable laws with which we are familiar *do* not and therefore *did* not harmonize. We are assured that subsisting beings nevertheless emerged "in an orderly manner." On its face this seems impossible. Therefore the proposition is important enough to have a chapter to itself. *First*, however, we ought to know how the scientists themselves define the theory of development.

Differences among the scientists.

Scientists are not all sure that the theory of evolution,—at least as applied to man,—is capable of proof, even theoretically, and some admit doubts about the facts, but cling to the theory. Dr. Aus-

tin H. Clark, of the U. S. National Museum at Washington, in an article in a recent Quarterly Review of Biology, says that "there is not the slightest evidence that any of the major groups arose from any other. * * Man appeared suddenly, and in substantially the same form as he is today;" and Prof. Frederick Tilney, in introducing his monumental book on the "Brain, from Ape to Man," says in substance that it is necessary to look for the ancestry of man wholly outside the line of apes.

Dr. Arthur J. Thomson's reasoning, while highly pictorial, is very vague, and carefully avoids specific statements capable of being tested. The "time of the dim mists" for example, as describing the pre-historic period, which is his language, may mean anything or nothing. It may harmonize as well with this writer's view of the facts of that period, i.e. that if there was such a period nothing whatever is known about it,—as with the averments,—sometimes very specific,—of those proponents of the theory who state the facts about it with as much assurance as if they were personally observed.

Dr. Thomson's statement of the line of descent is poetic, but hard to apprehend. In his Yale Lectures in 1924, page 58, he says:

"The present day fauna and flora must be regarded as arising by natural processes out of an antecedent fauna and flora, on the whole somewhat simpler and more generalized, and so on backwards through the ages until we lose clue after clue, and find ourselves *in the thick mist of life's beginnings.*"

Verbiage rolls out of the Doctor's very agreeable consciousness smoothly, with never a bump over a disagreeable fact, never a pause for closer inspection, nor to examine an evidence; never a doubt about a turn or a crossing; so that when the book is closed the reader even forgets that he had been trying to think. The distinguished Doctor is his own judge; his own historian; his own interpreter; his own logician. This writer, after many years at the bar, practicing on a different principle, with proofs to find and furnish; with sound arguments to search for and present; with an opponent who could not be disregarded; and with, sometimes, a hard headed or slow witted judge to convince, looks enviously upon Dr. Thomson. He loves to read him, and has read him, as closely as he has been able to keep up, on the present theme. The Doctor has written much on the subject of this chapter. In his Yale lectures, "Concerning Evolution," page 125, among examples of "mutation," as he calls it, he mentions,

"Hornless calves, tailless cats, lop-eared rabbits, short-legged sheep, waltzing mice, copper bushes, weeping willows, thornless prickly pears, stoneless plums; and scores of other mutants familiar in the short period of precise observation."

This sounds like proof that types did in fact change in the course of descent; but on reflection we observe that the distinguished doctor does not mention that none of his instances is outside a given species, and none requires any modification

of germplasm, or other characteristic change, or departure from type; and therefore none tends to prove the possibility of descent *out of line*. Purporting to deal directly with this subject, and to catalogue instances, it is evident that if the good Doctor knew of a "mutation" outside the limits of the law of heredity he would have mentioned it. That in this he was not overlooking the specific question is indicated by his language on the same subject on page 13 of that book, where he says, after mentioning the pigeons:

"So, it is argued, have all the different kinds of wild animals and wild plants descended from ancestors that were on the whole simpler, and those from simpler still, and so back and back until we come to the first living creatures, (mark the plural), *whose origin is still in the mist*."

There are other instances of able investigators who, on this point, are careful to leave behind them a bridge for retreat. A distinguished astronomer in a recent book explains that he accepts the theory of mechanistic nature,—"not as a demonstrated natural law, but only as a working hypothesis." Others, though much more bold and confident about the facts, have appended to their confession of faith a limitation in similar terms. If this were indeed all, there would be little occasion for debate; but most of the authors here cited go much farther, and not only insist on the theory as a working hypothesis, but assert also that the hypothesis works; which must mean that the law and the facts correspond. It is this which is misleading if it is wrong, and this, in the interest of

sound thinking, ought to be examined. The story of human life, as these put it, flows easily from a humble origin in a speck of protoplasm to complete manhood, as indicated by the Cro-Magnon, a race said to have been superior to present mankind. The tale is told by many in eloquent phrase, touching but lightly on the difficult features; and here and there an author dips into poetry or classic literature; but they fail to give us a practicable criterion. In the recent symposium by British and American leaders of scientific thought, entitled Creation by Evolution, the theory is expounded and illustrated by a tree, shown as the frontispiece, with the different elements of which the progress of life has been compared. This furnishes a kind of criterion, though visionary only, and as such it will be, for the most part, the center of comparison in this chapter. Why *should* you believe all you are told, is here to be compared with why *shouldn't* you. Many confident scientists find it hard to be patient with the dullness of the world outside their circle, or perhaps with the mere reluctance of that world to accept their assertions as final. Prof. David M. S. Watson, for example, deems this a reflection on the industry and scholarship, and perhaps even the truthfulness, of the investigators. He says, (p. 253):

"Is it at all probable that there has been collusion among these witnesses, and that their testimony is false?"

Prof. Wm. M. Wheeler, of Harvard, says on page 223, to like effect:

"The Tree of Life"
(*Frontispiece of "Creation by Evolution"*)

"Are we to suppose that this conclusion unanimously reached by so many men who have devoted their lives to minute and conscientious observation and experiment is the result of some marvelous hallucination, and that the truth lies with those who have given little or no study to the organic world, but have accepted blindly the doctrine of special creation fostered by equally unobservant ancient Hebrews, Babylonians and Mediaeval priests?"

Yet it ought not to be deemed disrespectful if we venture to point out the difference between a disclosure of error and an accusation of falsehood. We are not without scientific support in suggesting that even a labored argument is not scientific, though propounded by a scientist, if not sound. Dr. Jordan, a leader of thought in scientific fields, says—"Science is verified knowledge." We feel at liberty therefore to inquire, notwithstanding the suggestion that it is in the nature of a contempt of court, whether the facts discovered by the scholars themselves confirm the story of life as they tell it.

An admitted criterion and its shortcomings.

The frontispiece, mentioned above, is, as we have said, a wide-spreading, deep-rooted, solid-stemmed, many-branched tree, said to represent the development of living nature, including man. Taking it to be in substance a part of the argument, or perhaps a picture of the result, as relied on by the contributors to that symposium, we may use it for a comparison more convenient and explicit than the fuller argumentation. We reproduce it on the opposite page, with its title,—"The Tree of Life." The inscription beneath it is this:

"Evolution does not move in a straight course, symbolized by the links in a chain; the tree is a symbol of nature's plan of creation. The trunk represents the main course of life through the ages; the branches are the great groups of plants and animals that have appeared during the growth of the tree, the plants and animals now living are the twigs at the tips of the branches. In the evolution of forms there are no off-shoots leading from one branch to another; the branches start from below and diverge as they grow, each branch maintaining its own course."

Dr. Jordan, in his article—"Evolution,—Its Meaning," confirms the accuracy of the tree as an illustration of the evolution theory in this language:

"We must view the millions of kinds of different beings not as disconnected entities resulting from disconnected acts of creation, but as divergent twigs from the great parent tree of life."

And others, including Dr. Newman and Dr. Conklin, use the same figure.

Using the tree as a guide, we paint, as well as we may, our picture of the theory of Unit Origin, —what it is, and what it is not,—thus:

To eventuate in the multitude of living beings now subsisting the original unit must either

(1) Have given rise to *every living thing* in nature,—reptile, bird, fish, plant, animal and man, all emerging *from a single root or cell;* or

(2) Must have been *plural*, and not *singular;* but this would require an original cell for *each characteristic type*, incapable of any other; or it

(3) Must have been followed by a *series* of cells, all original, but of like (or like inclusive) type, in number sufficient to cover the whole field

of living things, *but beginning at different times.*

This writer can conceive of no other method, if any definable line or lines of descent are followed, by which we could have had a beginning, a history and a present status.

Only the *first* above describes the evolution theory, and the Tree of Life must be interpreted by that test. Neither the second nor third is consistent with the fundamental element of the theory that all living matter had a single source; nor would either be correctly pictured by the tree.

We observe, in starting our comparison, that the Tree of Life, like many other illustrations, cannot perfectly fulfil its purpose to illuminate the subject because it is harder to explain or to understand than the original proposition. This will be perceived as we attempt to apply it.

The evolution theory, as indicated by the Tree of Life.

If all living things emerged from a single cell, (as the tree and its root indicate), then each of the seven hundred and fifty thousand species now subsisting has diverged at some stage from the main stem, or from an independent branch, *and that divergence has been final.* Man was one of these, and now dangles, *complete*, at the tip of a limb, having passed through many a change of type to reach that point, but quite incapable of further development, unless to become more of a man. So of the elephant, the horse, the crocodile and the eagle, all of which it is agreed have reached

a "cul-de-sac." It follows, of course, that each *always* carried with him his own potentiality, *and no other*, whatever his temporary form; for by the rule as stated by Dr. Jordan (Creation by Evolution, page 2), "All change is *orderly*, never the result of accident or caprice or favoritism." Man therefore was, by the theory as thus illustrated, never a fish, or a bird, or a monkey; and if the embryo is supposed to say so,—from memory,—it is mistaken. This is so not only because the figure of the tree so implies, but because by the theory the die was cast when he first branched off, and it could not be otherwise; and also because our own observation shows us that every twig, representing a single previous line of descent, supports an independent being, the culmination of that line,—distinctive from first to last. Thus by evolution the course of development,—like the Tree of Life,—started with a single cell, having in itself no definite characteristics, but now bears a fruitage of seven hundred and fifty thousand different types, each hardened into a separate existence of its own, and incapable of change. Tracing the Tree of Life through its stages and to its final outcome, as thus pictured, is not hard to do, but it leads to these results: (a) Every present subsisting type is an inevitable outgrowth of conditions existing from the beginning, and could by no means be anything else. This eliminates the supposition that kingdom boundaries were ever crossed, and limits evolution to expansion in single definite lines; (b) It is therefore impossible that

the embryo could truly "recapitulate" any experience of passage through other types, and thus answers that proposition completely; (c) It contravenes and answers the doctrine of "mutation," since it does not admit of changes in type or character; and (d) It asserts that when the recognizable form of each type has been reached the function of development from one type to another (if such there can be), is at an end.

An eccentric result follows from the illustration of the tree; "the plants and animals now living are the twigs at the tips of the branches"; and there hang now those numerous beings, of as many different types, all alive, possibly still growing and developing, but not changing,—the bee and the elephant,—the butterfly and the buzzard,—the primrose and the squirrel. And this, we are told, is life, as it started, and as it came about. It is quite possible, it would seem, that the individuals comprising a distinct species, growing on one limb, have visible resemblances *among themselves*, but wide dissimilarities *as compared with other families or types*. This agrees with the facts of life as we observe them, and also as the most explicit among the scientists describe them, but the tree itself in full bearing, would be a notable object in a museum. Prof. Kellogg, (Evolution, p. 37) confirms the resemblances within groups, but the wide differences between the separate orders, in this language:

"There is something recognizably common in all the species of a genus, all the genera of a family, all the fam-

ilies of an order, and on up the scale of classification. Although every kind of animal differs from every other kind, * * yet there are likenesses which group them together, obvious liknesses among the members of the immediate group," etc.

Thus on our Tree of Life, having one stem and one root, and indicating one unit source for all living things, we find three quarters of a million separate kinds of fruitage,—distinct, and ever to remain so. Either as an argument or as an illustration, this writer is moved to say that the Tree of Life, represented as a true picture of evolution, concedes far more than the proponents of the theory have ever been willing to admit. Pursuing the course there indicated the shrew could never become a man; nor the pig a whale; nor the fish's face or body emerge into that of man; nor a frog into an eel. It conflicts with nearly every proposition laid down to prove the theory of unit origin. It controverts nearly every inference from the course of the embryo. It contradicts the fundamental assertion that similarity of structure proves relationship, for every item on the tree is equally a relative of every other, differing only in date of branching. If the shrew or the ape is a relative of man, so also, judged by the tree, is the tiger and the dove. The illustration of the tree denies every assumption that man is nearer to the primates than to the amphibians, the ants or the insects; each has his independent twig, and reached it by his own line of descent. If all on the tree are brothers or cousins by descent, the horse, with his eighteen ribs, is related to the oyster, with none. Surely

that comparison will have to be abandoned, and a new one devised, or the hypothesis that man and other living things developed from a unit of origin, is "slain in the house of its friends." But better comparisons may be suggested. The tree is an error, yet the theory, it may be urged, is still tenable. But there are other difficulties.

Another obstacle rises.

The origin of the Cro-Magnon, the first of his kind, covers now the whole field of inquiry as to man. If that race was a *maximum*, then evolution forever stopped there. If it was *not* a maximum, and our race had no previous history, then development starts there, but it also stops there, for there has been no advance since. This means that man, as he now is, cannot be traced to anything lower, nor even anything prior, without connecting the previous chain with the Cro-Magnon; but this is impossible, for nothing is known of a predecessor. So far as is known it *had none*. It must have originated some other way. The scientists have proved to their satisfaction and ours that the Neanderthal, which occupied the world before the Cro-Magnon was not in the same line of descent; and also that for three hundred and fifty thousand years, (Dr. Osborn now says nine hundred thousand), there was in the known world no other creature even remotely resembling man, or from whom he could by any possibility have descended. If then there ever was development in the line of human descent it ceased a

million years ago. At its utmost it ceased with the Neanderthal. Does not this answer the whole question. All that the wisest scientist then can say of mankind is that he *is*,—such as he is,—and that not the least thing is known about his origin unless it is found in Genesis.

Testing development by experience.

This is another test which the proponents of the theory invite us to apply, and which it is wise to examine. It is not admitted that man had no history of development, notwithstanding the *hiatus* preceding the Cro-Magnon.

It is true, it may be said, that he had no *known* predecessor, and if that were all, his arrival was at once the beginning and the consummation of humanity. This, however, it is supposed, only gives us our dating point. We are told that, skipping intervals when information is lacking, we can truly trace man's descent *backward*. If so that is our point for beginning. The theory of development cannot however be tested at all unless at defined stages we can come upon something recognizable, which is also historical. If we get past the first stage, we may drop our sounding line, on our way, into the movement of living things at those defined points in history, and see what the facts or conditions there found can teach us.

Leaving the Cro-Magnon date, and moving through the earlier period, ignoring the Neanderthal, and his supposed domination, the first recognizable stage is the date of the Heidelberg jaw.

The Heidelberg was "the first Neanderthal," says Dr. Lull; but the only item we find there is the jaw bone, the bearing of which as evidence we have considered above. He has nothing more to tell us. We get no light or fresh knowledge here. What a pity the jaw cannot talk. Nothing else can give us even a hint of surrounding conditions. Yet even if it could talk it could probably say nothing pertinent to our inquiry, for its Neanderthal owner, jaw and all, preceded his race into oblivion, and his characteristics, even if credible and significant, are outside our field of inquiry.

Advance and *succession*, are the objects of our search, and no item of evidence, even if complete, could prove anything on this point unless it could be compared with others in later stages of progression, and near enough in time and place to be significant. We would gain nothing, for example, by comparing the Heidelberg fragment, if it were in the human line of descent, with the Piltdown. There is nothing but the jaw to compare, and we have seen that the jaw of the Piltdown is believed by many, once including Dr. Osborn, to belong to a chimpanzee, wrought over to fit the crown of a skull of no particular character, gathered up in fragments. Mere resemblance, if such there was, would teach us nothing on the subject of *development*. But Dr. Osborn, who once believed the Piltdown to be the third fossil in order of time, now regards it as *first;* and also as an almost complete man long before Heidelberg appeared, and of *proven superiority*. If so, instead of *advance*

from one to the other, there was here *recession*.

"*Japhet still in search of a father.*"

On backward we move to the date of the Tree Shrew, suggested by some as the common ancestor of men and apes. We have at that stage reached Prof. Gregory's limit of twenty million years, (Creation by Evolution, p. 270), without finding any semblance of a being approaching man, even physically; and no suggestion of any mental or spiritual quality comparable to him. The writer's reasoning faculty,—not stimulated by the wish to believe,—informs him that the path has become faint and difficult to follow. Yet many men of high scientific standing assure us that man advanced, *within that time*, from the shrew—(comparable to a ground squirrel,)—to the Cro-Magnon, the highest type of manhood. The burden of proof is on those who so assert. We have found nothing to prove it, or even to suggest that *any* "common ancestor" was changing from something inferior into the likeness of man. No investigator names an intermediate being, and we are obliged to conclude that the theory has nothing factual to support it. Shall we blame our own dullness, or conclude that the theorists are mistaken.

Let us for a few moments consider the shrew. Has he indeed merit as a common ancestor? How are we laymen to judge? He bears none of the marks, and is not recognizable as of human type. Perhaps the reader can judge him better if we present his portrait. This is painted by the

scientists themselves. We can do so more justly than they, because we are not obliged to guess. Dr. Osborn tells us that the shrew has not changed at all in the millions of intervening years, and though he is not now available in person he has a modern relative, much like the original, (Men of Old Stone Age, page 235), who may sit for the portrait of the head of the house. We reproduce him (from Prof. Gregory's book) on the opposite page.

To suggest the distance the shrew must have travelled before emerging as the Cro-Magnon, if he travelled at all, we reproduce on the same page an artistic dream of the latter, from Dr. Osborn's book, Men of Old Stone Age. At our point of observation the shrew had still twenty million years to grow to the stature and quality of the Cro-Magnon. By the theory of evolution he should have been on the way, developing from stage to stage, expanding in body and mind, all that time. Strange to say however he has never changed a particle, but is still the same. Dr. Osborn describes him as "tiny," (both then and now); and other scientific works give other details. He is from four to six inches in length, and much like our common ground squirrel. He has not as yet become man, nor lost his early littleness. Will any scientist who supports the shrew as the ancestor of our race, tell us why. Is it possible that one shrew alone developed, leaving the others in their original state? Is it possible, if this be so, that the chosen one should make that great ad-

vance, in a long chain of descent, and leave no fossil or other token that he has passed that way? Have the other supposed common ancestors no better support? Are there no facts at all on which reasonable and even eager confidence may rest? If the shrew has not grown or advanced at all in these twenty millions years what ground have we to believe that he will ever do so. Is it consistent with any tenable theory that in that long stretch of time he has not advanced at all, while man, said to be his descendant, has reached the top of the world. Does this look like proof of a "common ancestor," or of a predictable line of descent?

Many investigators are not sure about the shrew, but some tentatively suggest him. Just why he should be chosen as the common ancestor it is hard to imagine. The pictorial sense of the investigator may not have been working, for one of the accepted tests of the soundness of the evolution theory is physical resemblance. We have not invented the shrew. He is named for us by men of distinction in science. If these do not know a tenable ancestor who can comply with the specifications why is not their error corrected by those who do? Prof. Gregory is one of those who at least do not oppose the shrew's candidacy. He says, (p. 289)—"Although the fossil record of the evolution of the Primates is meager it tends to show that the various groups appeared in the following succession:

(1) Tree shrew, * * (6) Man." And on the same page:

THE TREE SHREW
(*from "Our Face, from Fish to Man"*)

THE CRO-MAGNON
(*from "Men of the Old Stone Age"*)

"Elliott Smith and his students in England and Tilney in America have worked out the sequence in brain structure from tree-shrew to lemur to monkey, gibbon, orang, chimpanzee, gorilla, man, and they find progressive changes culminating in the enormous expansion of the brain and intelligence in man."

This is scarcely an argument for the candidate. It suggests uncertainty. He recognizes the test of similarity, but has a second choice. He contends, in terms we have quoted above, that man especially resembles the fish, and compares their faces, even in the title of his book. Dr. Osborn also recognizes the same test, and vaguely suggests the shrew as at least eligible. He says, (Origin and Evolution of Life, p. 236):

"Proofs of arboreal habits are seen in the limb-grasping adaptations in the hind foot in many primitive mammals, and even in the human infant. Thus the tree shrews, the tupaias of Africa, in many characteristics resemble the hypothetic forms of Crustaceous time, from which the primates (monkeys, apes and man), may have radiated."

Would not the doctor, who has a very sincere mind, and while he accepts and defends the evolution theory sees no way to meet its contradictory requirements, feel easier and more comfortable if he should go frankly back to the monkey, who at least has some bones and muscles like humanity?

But Dr. Osborn now appears to withdraw his support altogether from the shrew, and swings over to a mythical personage called the "Dawn Man." He asserts that man's ancestors never were arboreal. If so neither the shrew nor the ape can fill the requirements.

Dr. Lull, (Ways of Life, p. 245) says:

"The ancestral stock out of which the primates arose was doubtless the Insectivora, some of which, like the pentailed shrew, are arboreal. One visualizes therefore, as the hypothetical ancestor of all primates a big-brained insectivore, with keen senses," etc., etc.

and on page 246:

"Out of this hypothetical stock came the earlest primates," etc.

Prof. Kirtley F. Mather, (quoted on an earlier page) said:

"At that time too we find the first record of a primate, that order of mammals to which zoologists refer man. This was a small quadruped: * * But in general appearance this creature resembled a rat much more closely than a monkey, ape or man."

Perhaps our little ancestor the shrew has been honored with a status of royalty beyond his merits; perhaps the ape-like person, or the rat-like person has a better claim. Perhaps there was no such line of descent; perhaps man was at his best when his history began; perhaps the shrew was in a reversed order of evolution, and was then or is now on his way backward.

But even if the proof does not support the shrew, how would this be improved if we should substitute the rat or rat-form suggested by Prof. Kirtley Mather, or the diminutive monkey indicated by Dr. MacCurdy. What reason is there to suppose that these would have advanced in twenty million years more than the shrew.

But waiving this question, and hoping for clearer light, we pass on still backward to the next point of time appropriate for soundings, which we take to be the rise of the vertebrates, since these were the first beings having skeletons to fossilize. We identify this period as the time of the earliest fossils, which, we are told by Dr. Lull, (Creation by Evolution, p. 257), was five hundred million years ago. Here again we drop our sounding line, but find no bottom. We have not yet any trace of a living being on its way to become man. This is remarkable if the theory of development has any tenable features. The skeletons of horses, camels, elephants, and others have been found fossilized and preserved, beginning, it is said, small, and immensely increasing in size, but always capable of identification. Why not man, or his predecessor, on the way to become man? Excepting the four fragments of fossils which are elsewhere discussed, —nothing. What are we to infer? Dr. Lull, Creation by Evolution, p. 267, recognizes the fact, and regretfully says:

"What lies back of our own species is still unrevealed."

and on p. 257:

"The missing links in the early evolution of animal life constitute for millions of years the entire chain."

"Man"—by which is meant fossils accepted as on the way to humanity, which may have been no nearer to man than the shrew or the ape,—"appeared very late in the geologic ages." The first appearance of vertebrates was far earlier.

Still more vague and shadowy is the next preceding period. There were no bony fossils before the vertebrates, and of course during all that period no indication of the development of any being capable of becoming man. We can guess, as many a scientist has done, but we have no facts. At and since the fossil period living beings, as well as plants, were capable of being recognized and classified into species, families and orders, and thus they have remained. All changes since that time have been in individual characteristics, having in each known instance an adequate cause. This subject is dealt with more fully in our Chapter I of Part II; "Unity of Origin as the fundamental feature of evolution."

It follows that every change in type, from the unit cell to the classified species, must have occurred within that "period of the thick mists," as Dr. Thomson has called it. It will be shown elsewhere that no typical changes have occurred since. This subject is considered in detail in Part II, Chapter II, "Continuity or Not." Is there then no basis for the evolution theory, as applied to man? We can only reply that we are endeavoring to place before the reader, in outline, all the facts the scientists furnish, and he must judge for himself. In another place we will fill up this outline as far as our information will permit, but we think with no more certainty.

We have able authority to confirm some fleeting impressions of our own that scientists, though as a class highly intelligent and able men, have still,

like the rest of us, the wish bone and the back bone not far apart. Dr. Lull, in a passage quoted elsewhere, in no jesting mood, says:

"These theories range large in scope, and show how the scientific mind can soar when limiting facts are not obtrusive."

In our next chapter we will observe how difficult it is for the ablest scientists to agree with each other, or to discover, even for themselves, facts sufficiently assured to make a dependable case for their theory. They differ in detail; they differ in inference; they differ in method; but they all cling hopefully to the hypothesis.

We beg to suggest that one of the principal defects is in their system; and that if this is ever corrected, or ever can be, it will come about by beginning with investigation, *without a theory*, and framing a theory only when the facts are known. This may be fatal to the result they are now asserting as a shibboleth; but they are honorable men, seeking earnestly for truth, and we feel free to suggest that our proposed method is easy on the conscience. Our next chapter deals with this subject.

CHAPTER X

Forming and Reforming a Theory

HERE is discussed the proper way to frame a theory,—by first learning the facts, and then framing the theory to conform; and this is compared with the improper way, i. e. first framing the theory and then searching for facts to prove it. We will here discuss also the lessons to be drawn from the experience of one able scientist who was obliged to change entirely his basis of fact, but still holds firmly to the theory.

CHAPTER X

Forming and Reforming a Theory

A theory and a theorem ought to be the same thing. Abstractly they are, but in practice not always. The problem before us here begins with a consensus;—Man is, and we know his characteristics. How do we explain him? It is said by scientists, claiming to be agreed about it, that he was not created in complete form, but developed from something inferior. This would be a mere fact, a theorem, if anybody had seen it happen. As it has to be proved by inference from other facts it is a theory only; but it ramifies and subdivides into lesser theories, each of which must also be proved by inference, since, as has already appeared, facts are wanting. Since the ultimate fact may, it seems to be supposed, be proved by more than one chain of inference, we might reasonably expect the scientists to select the line they deem convincing, and agree about it, and stand upon it. This they have not done.

Prof. Gregory himself offers us an assortment. In his new book "Our Face, from Fish to Man," p. 75, he says:

> "There are thousands of good reasons for accepting as a fact the evolution of man from lower mammals."

Yet he says (p. 60):

"The families of man, apes, monkeys, tarsoids, lemurs and tree shrews are exceedingly rare as fossils, except in a few localities and geologic horizons and the known remains usually consist chiefly of broken jaws with a few teeth."

He adds that agreed knowledge of what these were may be obtained by examining representatives now living. That is to say,—all we know is inferential, and depends on the assumption that living beings were always the same,—which conflicts with the theory he is trying to prove. If scholars would be specific, then, knowing and clearly stating what they wish to prove, we could discuss it intelligently. As it is at present, if we argue that an ape-like ancestor, common to both branches of the family, is physically impossible, it may be said by another group that the common ancestor is a tree-shrew, which is different; and still another group, composed at present of only one protagonist, thinks it was a "Dawn Man." It does not seem too much to ask that the questions of fact be settled first; the theory could wait until we have agreed upon the evidence.

This is not intended to be frivolous, but to explain the meaning of our present chapter heading,—"Forming and Reforming a Theory." It also bears on the soundness of a proposition we have advanced under another heading,—that the only logical contention in support of the descent of man from a line of ancestors beginning with an original cell, is that he descended directly from the anthropoids, since this is specific and not eccentric, and we would have for decision only the

question whether he did or not. This would however lead at once to the gap between them which nature does not seem to have filled, i. e., the missing link.

It is our plan to consider, under the present chapter heading, Dr. Henry Fairfield Osborn's present position, and its bearing on our discussion, and its ultimate end. In order to do that we must consider by way of premise whether a theory should logically be devised first, and the proof sought afterward; or the facts found first, and a theory sought or created to explain them. Some of the ablest among the scientists who have considered this question hold that the facts should be first found.

Dr. C. Stuart Gager, who writes on the Evolution of Plants, in Creation by Evolution, says:

"A theory is a hypothesis that has been found to be in harmony with all the known facts, or with a vast majority of those facts."

Dr. Horatio H. Newman, writing in the same volume on "Cumulative Evidence for Evolution," says:

"It would be a poor theory that did not agree with the facts upon which it is based."

Dr. David Starr Jordan, writing of "Evolution —its Meaning," says:

"As a science, organic evolution * * comprises all that we know or may reasonably deduce from our actual knowledge of the history, development and divergence of living creatures on the earth."

Mr. Huxley said the path of scientific history is strewed with the wrecks of abandoned hypotheses.

It is not consistent therefore for those whose creed is to adopt no theory except on proven facts to adhere to the theory when they find it necessary to abandon the supporting facts. If man did *not* descend from a common ancestor of apes and men, then it is important to a defense of the development theory to point out some other ancestor (himself in the line of descent from protoplasm) from whom man did, or at least could, have come.

Dr. Osborn finds himself unable at present to affirm any ancestor of man whom he can either point out or describe. He has therefore nothing but the theory to rest upon. This must be our assumption as we proceed to consider his change of front, and the bearing of his present position on the subject of our inquiry.

A distinguished author changes his mind.

Dr. Osborn's books have been so consistently relied on by the supporters of the evolution theory that his new book "Man Rises to Parnassus," which came out (1928) after the first edition of this work was completed and in the printer's hands, must have been to many scientists a serious shock. We refer to it here not by way of criticism but as an illustration of the unconvincing character of the evidence relied on to prove the evolution theory. It purports to be a sequel to Men of the Old Stone Age. The Doctor says of himself in the Preface, (p. VIII.), that he has been lecturing and

writing since 1891 "on the absorbing subject of Prehistoric Man." That period covers some thirty-four years. About two years have since elapsed, and in that period he has discovered that he had been in error in many of his most important conclusions. The quotations we have given above from his earlier works may serve as one element of a comparison to see how far he has departed in his views within that brief period. We quote a few of his newer views, (p. 23):

"We now know that man is unbelievably ancient in origin. . . . Just as the whole life period of the earth is credibly reckoned by physicists at a billion years, so now man and his ancestors are being traced back over a million years to the Dawn Stone Age."

If the first cell started in life a billion years ago, and the Dawn-Man appeared a million years ago, we have nine hundred million years unaccounted for; but a million to a scientist seems to be but small change.

Of the supposed Piltdown Man he says (on p. 72):

"The author not only recants his former doubts as to the association of the jaw with the skull," etc., etc.

Of the Neanderthal he says, (p. 88):

"Of the . . . Neanderthal races the first comers were the Heidelberg Man, to whom the term Homo Heidelbergensis has been applied. The survival of a single racial type of mankind for a period now estimated at not less than nine hundred thousand years should not surprise us," etc.

Of man's ancestral type, he says, (p. 214):

"The author has now entirely abandoned the arboreal hypothesis, and believes that man has descended from cursorial or running ancestors."

Of his reason for his change of view as to the Piltdown skull the Doctor says, (p. 56):

"The author was one of the American School of skeptics who finally reached the opinion that this was an instance of the accidental association of two wholly unrelated fossils. It would have been difficult to dislodge this opinion save for the . . . discovery of the remains of a *second* Piltdown man . . . about two miles distant . . . by the original finder Dawson."

But from his description of this "second" Piltdown man it appears that it was *not* a man, nor a skeleton, nor even a skull, but three fragments which the Doctor describes as "minute." They are mentioned above, on page 150, in his own language.

We have alluded elsewhere to the fact that the Doctor does not explain how the discovery of those "minute" fragments, not themselves identified as belonging to the same individual, could alter his very firm judgment that the lower jaw of the Piltdown fossil *did not belong to the same race nor to the same man*. None of the newly discovered bones was in the jaw. It seems clear that his change of view was not really due to the discovery of a *new* fossil,—since there was none of any significance,—but from a new emphasis which he had come to place on the flaked flints. His book shows that this was his ground for radically changing the dating of the first Neanderthals, and placing their arrival on the earth at a time when there was nothing but flints to support his argument; and we have shown above that the flints themselves form no fair basis for inferring man.

Thus the learned Doctor now elects to take his stand upon his weakest argument.

It is not for the present writer to criticise the Doctor's sudden change of view in these respects, nor even his re-dating the Neanderthal eight thousand centuries further back, but it is surprising that some of the eminent scientists who have sometimes been impatient with the doubts, or only the hesitation of laymen to accept their views, should find it so hard to determine what those views are, and so easy to shift their previous anchorage, *on the same evidence*, or even without evidence.

The writer, if he were making a partisan argument, would be disposed to hold Dr. Osborn up to prove that the evidence on which the world is asked to accept the theory of evolution is so unconvincing that scientists, eager as some of them are to believe it, find it necessary from time to time to shift their ground, and better their hold.

Still more significant is the Doctor's present conviction, contrary to his previous opinion (p. 23) that

> "Even in the inconceivably remote past man was a relatively superior being, walking erect, and with very capable tool-making hands, guided by a very superior order of brain."

This can only mean that, in his present opinion, from the very dawn of human history man was about as efficient, mind and body, as he is at present. This agrees with Prof. Clark, of the National Museum, quoted above, but it certainly does not harmonize with the theory of evolution, the essence

of which is to the contrary. From what, and when, then, and how did man develop? and why, at his very first appearance on the earth, was he as far advanced as any of his successors? This sounds like the story of Genesis. How can the theory of development be justified by the fact,—if such it be,—that man, instead of being, at his first visible appearance, on the way up to completion, was on the contrary about ready to quit growing?

If indeed the Dawn Man himself had developed from the unit cell, which the theory requires, then all stages of development must have occurred still farther back, and at a time as to which no facts are known, and no evidence is, or probably will ever be, available. Since the present writer uses the Doctor's own language he cannot be supposed to pervert or misrepresent his present position. It is true the Doctor does not admit what appears to us the inevitable result, and conceivably others may read him differently. His book is always available for examination.

We have now followed the evidence and also the inferences furnished us by the scientists to prove that man was not created, but developed. We have threshed out the straw,—dry,—oh so very dry,—but have no wheat. Authentic history now begins. The world has had no warning of an impending change. The thunder has not rumbled along the sky, as in the case of Caesar. There was no lion in the market place. The Neanderthals were dead and buried, and the world was empty.

But one morning, at dawn, when the fog lifted, a trumpet blew, and the world saw a new race of men encamped on its plains. This is the story of our next chapter.

CHAPTER XI

A New Epoch; the Cro-Magnon Man

This chapter describes the sudden appearance of man, definite, and capable of being recognized; and the astonishing difference between him and any supposed link in the chain preceding him.

CHAPTER XI

A New Epoch: The Cro-Magnon Man

Still assuming that the knowledge of fossils has arrived at a stage to be dependable, if it ever can, and seeking our materials from the scientists as before, we come to consider the Cro-Magnon man, and the circumstances of his arrival. This opened a new epoch. The Neanderthal was extinct, with all, if any there were, who preceded him, and nothing has been heard of him since. It is not contended by any one that he merged into the Cro-Magnon. Osborn, (Men of Old Stone Age, p. 261), says:

"In the whole racial history of Western Europe there has never occurred so profound a change as that involving the disappearance of the Neanderthal race and the appearance of the Cro-Magnon race. It was the replacement of a race lower than the existing human type by one which ranks high among the existing types in capacity and intelligence.

"Thus the way was cleared for the new and better race, as if to emphasize the termination of an old and inferior one, and the rise of a new and superior one."

Out of the clouds the Cro-Magnon man appeared, as suddenly and as amply equipped as Minerva, who "sprung full armed from the head of Jupiter."

The disappearance of the last previous creature deemed to have human traits, even if fortuitous,

operated as if framed for the purpose to prove the essential difference between animals and men, for the next stage, i.e., the type as well as the advent of the new race,—opened a new world as effectively as if there had never been another. A race of men distinctly and evidently human appeared and took the empty place as to the manor born. Where they came from no one knows. Dr. Osborn argues that they *must have* come (p. 261) through Phoenicia, around the coasts of the Mediterranean. Two remarkable things we know about them,—one is their advent, from an unknown source; and the other their character, intelligence and faculties,—not merely *capable* of cultivation, but already established in the higher standards of human capacity and understanding. One writer says:

"The Cro-Magnon had no known predecessor to account for him, and was at his best when he first appeared, physically, mentally and spiritually. The Cro-Magnons represent in all aspects the highest point to which the human race has ever attained. In physique they were impressive. The average man was six feet and one and a half inches in height, and some skeletons indicate considerably greater size. One is six feet four and a half inches. They were very erect and well proportioned, the women no less so; and it is noted that the brain capacity of the Cro-Magnon woman exceeded that of the average male of today."

Professor Kellogg (Evolution says (p. 260):

"The human body and its inherent mental capacities have almost certainly retrograded rather than advanced since the time of the Cro-Magnon man."

Elsewhere he says:

"The Cro-Magnon is the latest type to be found in

what is deemed to be the upward trend of humanity, and he dates back some thirty thousand years, and was the equivalent, both in physical body and in brain and brain capacity, of the men of the present day."

Professor Osborn says:

"The Cro-Magnon race probably belonged to the Caucasian stock."

And again:

"It was a race in no way connected by any ancestral links with the Neanderthals. A race capable of ideals, of reasoning, of imagination. and more highly endowed with artistic sense and ability than any uncivilized race which has ever been discovered. After prolonged study of the works of the Cro-Magnons one cannot avoid the conclusion that their capacity was nearly if not quite as high as our own; that they were capable of advanced education; that they had a strongly developed aesthetic as well as religious sense."

Sir Arthur Keith says of them that they were one of the finest races the world has ever seen.

It is supposed by the experts that the Cro-Magnons were at their first appearance numerous, and did not originate in a single pair, or even a few, and on this assumption it is urged that they *must have* marched into Europe as a colony, much as the Israelites marched into Canaan. But of this there is not, nor in the nature of things could there be, any evidence. As to the race, the fact of its character, or at least the facts from which its character is inferred, are admitted, but no explanation is found. The sudden rise of the Cro-Magnon, with no history of development, and the complete and final disappearance of the Neanderthal—whatever he was—raise difficulties of

immense importance. How can the evolution theory survive an obstacle so abrupt and so total? May not the rise of such a race,—with no known predecessor,—tend to confirm the story of Genesis, as well as to discredit the theory of evolution. Here are two narratives, one proved by fossils and remains, said to be striking in character and easily understood,—inferential, to be sure, but assumed to be dependable,—with its only explanation of known facts shown to be incredible; the other, dealing with facts not otherwise known, written by an unknown man in some remote age. This offers an explanation adequate if true, and not disproved, but only denied. They both describe a race of beings having like characteristics, and unlike anything known before. Since nothing in the things we know of this new race affords the least support for the theory of development from protoplasm, we are moved to ask whether the theory of special creation may not fit the case? Is it impossible that the Cro-Magnons came into *existence* suddenly, conforming with the suddenness of their *appearance* in the world. This cannot be incredible to those evolutionists who believe that life, at least, must have had a supernatural origin; nor can it shock those who, admitting life, and of course that it had a beginning, are unable either to disprove this explanation of its origin, or to suggest a better one. One who admits that life existed when development began can hardly deny that the same causes, whatever they were, might have produced it anew when the Cro-Magnon first ap-

peared. If so the only open question of fact is whether it did. If this required time surely it was ample. One thing more than others we are sure about, i. e. that nothing in nature was ever cramped for want of space.

If time is money, as the proverb asserts, this is a wealthy age, and no group of men handle it in larger amounts, or regard it more lightly, than those dealing with historical events, many of which are regarded as reaching back indefinitely, with no time clock to check exuberance. Being largely merely representative or symbolical, more or less like Mr. Macawber's promises to pay, the scientists, and mayhap the lawyers, throw it around with a free hand. The unreliable character of estimates of time, especially in the present field, deserves some comment, and this is the subject of our next chapter.

CHAPTER XII

The Question of Time

This chapter assumes the necessary uncertainty of time estimates, and shows their immateriality on the present question; and illustrates the futility, and even the absurdity, of the use and computation of time periods as bearing on the questions before us.

CHAPTER XII

The Question of Time

The lack of any reliable standard for the measurement of time, and the hap-hazard nature of estimates, are illustrated by Sir Arthur Keith's elucidation of his method of computation; (Antiquity of Man, p. 713). Sir Arthur is more candid than is usual with a man whose scientific standing gives his *ipse dixit* an evidentiary value. He permits us to watch him think;—"to see," as it were, "the wheels go round." This is comforting to laymen, for it convinces us that the guessing of a scholar is as inconclusive as that of a tenderfoot. Certainly this is guessing; or, if that seems too cold a term, certainly it is not science, for that implies at least a measure of certitude. Dr. Jordan, quoted elsewhere, defines science as "Verified knowledge." With this in mind let us follow Sir Arthur's method, which we quote as follows:

"In seeking for the ancestral form of our breeds of dogs, of horses, of cattle, we select one of a generalized and ancient type, such as we conceive might have become modified into various modern breeds. We must apply the same method to the elucidation of human races. If we search the present world for the type of man who is most likely to serve as a common ancestor for both African and European we find the nearest approach to the subject of our search in the aboriginal Australian. . . . If then we accept the Australian native as the nearest approach to the common ancestor of modern mankind can we form

any conception of the length of time which would be required to produce the African on the one hand and the European on the other, from the Australian type? . . . A human type changes very slowly. Therefore we must make a liberal allowance of time for the mere differentiation of the modern type of man into distinct racial forms. . . . I do not think that any period less than the whole length of the Pleistocene period, even if we estimate its duration at half a million years," etc., etc.

To a lawyer, accustomed to be called upon for tenable reasons for the faith that is in him, this looks crude. Having infinity to work with, both in time and space, Sir Arthur seems disposed to use it all. But even if it admitted of a test of any kind, it is plain that either Sir Arthur or his confreres in science are wrong about nearly everything, for scarcely a single starting point of fact meets the views of other experts. Most of them controvert the assumption of the Australian as the type of common ancestor. Doubtless Dr. Keith himself would be happy, if he could, to suggest a more convincing method of time measurement. The fact that he knows of none, but is able to convince himself by a plan capable of no defense at all, indicates how little there is of a reliable character to prove even the antiquity of man, which is the subject of his book. Still less dependable, or at least no more, do we find the data supposed to prove that man developed from a cell of protoplasm. The defection of Dr. Osborn from the ranks of the conservatives, and his new plan, sometimes varied, of reckoning time by multiples of a hundred centuries, is another

proof that time means but little to the scientist.

The human mind can scarcely grasp, and certainly cannot apprehend, the immense time periods, on the evolutionary hypothesis, within which there are no known factual remains to support the theory of human development. The dating of the earliest skeletal remains having any appearance of continuity is from the discovery of an incomplete skeleton designated as the Neanderthal man. This is regarded by proponents of the theory as specially important because other skeletons or fragments, chiefly the latter, (some sixty in all—see Professor Simpson in Man and the Attainment of Immortality), were found years afterwards, which it is said indicate a race or related races which continued to exist over a period estimated by Kellogg, (Evolution, p. 229), to commence not far from four hundred thousand years ago; (Keith's chart, p. 733, about one hundred and fifty thousand; Osborn, Preface to Men of the Old Stone Age, from one hundred thousand B. C.; Dr. Osborn's estimates, after three more years of reflection, nine hundred thousand; Professor Simpson, in Man and the Attainment of Immortality, p. 102, fifty thousand); and this it is said continued to the time of the coming of the Cro-Magnon man, perhaps twenty-five thousand years ago, or possibly fifteen thousand, or even less. Estimates of time vary greatly, and while we get from them an impression of guess-work which has not the appearance of science, we need not speculate on the reliability of any of them. We are

concerned here only to find and state the evidentiary facts from which the intelligent investigator can judge for himself whether these bones were human, or in the human line of descent; or whether any of them showed tokens of development into man from something lower. It is not unreasonable however to suggest that these great time periods, having the effect to scatter still more thinly the rare items of factual evidence, tend to increase our doubt of the verity of a theory so weakly supported. They seem to indicate a desire to confirm the theory by analogy to the immense periods prevailing in our discussions of geology, but with the result to fritter away the items of evidence, and impress the reader with the unreliability of any hypothesis based upon them.

Nothing is more difficult to estimate than time periods. We have observed an instance in which authorities equally competent vary between fifty thousand and nine hundred thousand years for the continuance of the supposed Neanderthal race, and a wide range also in the dating of the Heidelberg jaw, from one hundred thousand to a million years. Another is found in the story of the discovery at different times of two skeletons, only a short distance apart, but so differing in surroundings as to be assigned to different epochs, estimated at hundreds of centuries apart. Time is also difficult to judge in the Genesis story. No date for creation is given in that narrative. Many varying systems of chronology have been suggested, not supposed to conflict with the text, one of which

reckons some eleven thousand years to the death of Rachel. In the early days of our era a period as long as fifty thousand years was allowed for man's supposed residence upon earth, and this by assured believers in the Genesis story. There seems nothing to the contrary except the chronicles of life and death mentioned in the current narrative, and they have been otherwise explained. The Ussher chronology, a useful guide in many places, but not much of a reliance in others, was devised only three hundred years ago. Time periods and calendars have varied much in the estimation of men during recorded history. The Egyptians, it is said, had years of only four months duration. But even the time comparisons which we can make do not differ very widely, as such estimates go. Whether, as by Ussher's system, the creation of man (taking this to synchronize with the rise of the Cro-Magnon race) preceded our era four thousand years, or, as by Osborn's estimates, ten thousand, or fifteen, is not material if periods, though stated in years, are not to be reckoned merely by adding all references to time together; or if in fact time of which no record is preserved is more properly to be measured by events, or personalities, or races, instead of by the apparent succession of years. But the purpose of this writer is not to prove the veracity of the Genesis story, as compared with any conclusion of scientists, but only to find out whether the prevailing propaganda for the evolution of man from a single primal source is maintained by the evidence. If not, then the writer is interested to ask

how it can acquire a standing to supplant the long prevailing belief in a special creation, and especially why it should seriously concern the world now, if it was dead and gone when Adam,—(it will do no harm to call him that, even if he had another name),—was born.

CHAPTER XIII

A Summary of Conclusions

This chapter suggests and gathers up conclusions from the previous discussion, and states the results.

CHAPTER XIII

A Summary of Conclusions

These are divisible into several groups—

1. *Eliminations—on assured grounds;* showing that the bulk of the world is outside the theory of evolution.

2. *Ineffective argumentation;* showing the failure of the principal inferential tests of the evolution theory.

3. *The Neanderthal,—if regarded seriously;* showing the futility of the whole discussion as to that race.

4. *Man himself—complete;* showing the opening of a new epoch, with man at his best.

5. *Hit or miss—laws of nature;* showing that sleight of hand is not unknown in science.

UNDER OTHER HEADS:

a. *Unexplained things affirmatively shown.*

b. *Net results.*

c. *A group of alternatives;* supplementing the record.

A few conclusions have been stated in the course of this discussion. Now, at the close of our rather full review of the factual evidence, they can, if still found tenable, be reaffirmed with more conviction. The writer has found, and has no reason to doubt that the reader also is convinced, that these are still sound.

Eliminations on assured grounds:

(1) Inorganic matter was, for the greatest part of the story of the universe, outside the field in question. Evolution began with *life*, which was very late. Therefore only a small part of the universe can fall within the theory. The whole inorganic period is without explanation by evolution.

(2) Since neither humanity nor other forms of conscious life emerged from the same source as plant life, we must regard the plant kingdom also as eliminated. In this field are two hundred and fifty thousand species, compared with a total of seven hundred and fifty thousand. Only two-thirds of living things therefore could possibly be traced to one unit of origin, and the necessity for *more than one* original unit is enough of itself to controvert the most essential feature of the theory.

(3) Man's life on the earth cannot be traced back more than a million years, says Dr. Osborn; but the life of the world he says is a billion. The proportion is one to a thousand. This is too small to justify a theory of the universe, although it might suggest the possibility of a new hypothesis.

(4) Since, under the only theory supported by logic, man is the culmination of a line of development commencing with a cell which could not eventuate in anything else, the whole world of conscious life not merging into human is excluded.

(5) The whole period of the Neanderthal, estimated by Dr. Osborn at nine hundred thousand years, and by Dr. Lull at three hundred and fifty thousand, must be eliminated, because it is ad-

mitted that they were not within the line either of human origin or of human descent. This eliminates them here, for our inquiry is as to the origin of present humanity, but it may leave open the question of their own independent history, if that be regarded as of interest.

(6) We have mentioned many other eliminations which comprise an immense world, none of which evolved from any unit of origin, if anything could; and for this science furnishes no explanation. The proposition of a common origin of living things is therefore completely disproved. These groups of living beings exist, and each family may be traced back to its own recognizable head, but not to a common unit. The theory as pressed on us includes *all*, and nothing less will satisfy it. It is therefore completely untenable, because by the eliminations only a small minority could possibly have descended that way. Therefore there is no such thing as "the fundamental unity of life."

Ineffective argumentation:

(1) No test of man's descent from anything different even worthy of argument is found, supposed to support the theory, except "the course of the embryo" and "similarity of structure"; and as both of these have been shown to be without merit there is nothing credible, unless it be fossil proofs, for the theory to rest upon.

(2) Paleontology is the only factual test suggested; but it proves no line of descent; no suc-

cession of fossils; no progression from one order to another; no approach toward humanity; and further all its evidence, or practically all, falls within the life and period of the Neanderthal, which it is admitted was *outside* the line of human descent. There is therefore no paleontology which illuminates the subject.

The Neanderthal,—if regarded seriously.

(1) If any basis ever existed for the evolution theory it ceased with the expiry of the Neanderthals. They disappeared, and "left not a wrack behind." If that race was ever going onward toward humanity its progress ended when it died. When the human population of the world began again it was with a new race, and on a new footing. Thus evolution is now merely academic.

(2) Paleontology deals only with the period of the Neanderthal, which is dead. It therefore holds up both its hands, empty. Of the four outstanding fossils considered above two were Neanderthals, and the others within that period. But if not, yet they were so widely separated in location and time that *succession by descent* was impossible; and there are other reasons why their story has no bearing on the question of development.

(3) Most of the Neanderthal bones discovered were found among the bones of animals. In one cave there were "variously distributed through the different layers thousands of animal bones mingled with hundreds of human bones," (Osborn pp. 181, 182). Others, as in Rhodesia, were in like situa-

tion. But for the requirements of the theory no one would suppose them to be human. What were the bones of human beings doing there, and in that companionship?

(4) The selection and separation of bones supposed to be human, fragmentary as they were, and long exposed to the elements, would be a hopeless task, and in nearly every case only to be guessed at.

(5) Reckoning the Neanderthal as among prehistoric races, no instance is known of any creature among them who could speak or think, learn or aspire. They lived in full view of all that was being done or threatened around them, amid the cataclysms of nature, and in daily conflict with beasts, but learned nothing and accomplished nothing. This is animal experience, but not human.

(6) Generations succeeded each other, (at three to a century more than ten thousand generations), without a sign of human faculties. Their history taught them nothing which it required intelligence to grasp, and left them nothing to transmit by descent. The latest generation was no better or wiser or more mature than the first.

(7) They roamed over Europe for three hundred and fifty thousand years, says Dr. Lull, or nine hundred thousand according to Osborn, and still remained the same. They created nothing, wrote nothing, sang nothing. From what are we to infer that if their existence had been prolonged another like period they would have shown signs of approach to humanity?

(8) For those great stretches of time they were, it is said, emerging from lower into advanced stages of development, by individuals and in troops. Would not some be always reaching maturity and some falling short, in varying degrees? Where are those unmatured bones? This greatly disturbed Mr. Darwin. He said,—"Why do we not everywhere see innumerable transitional forms." "This difficulty," he said, "for a long time confounded me." To this he could only answer, "I believe the answer mainly lies in the record being incomparably less perfect than is generally supposed." But that is no answer. It does not explain why *mature* bones *were* found, but *never one immature*, or "transitional."

(9) If the Neanderthals were not apes how does it come that they fit that pattern, and fall so far short of the pattern of mankind? We are urged by the scientists to compare the two, and to regard that comparison as evidence, (Kellogg, Evolution, p. 48): but in doing so we find so large a territory of man's nature untouched that we are more impressed with the immense differences than with the few and remote resemblances.

(10) Some of the leading proponents of the evolution theory, after expending great labor in investigating the remains of the past, hoping to establish their relationship with man, have closed with a sigh of regret like this, (Osborn, p. 51):

"Among these fossil anthropoids, as well as among the four preceding forms, we discover no evidence of direct relationship to man."

The Neanderthal disappeared; *and the world was empty.*

Man himself—complete.

(1) Then twenty-five thousand years ago, (perhaps; Dr. Osborn suggests fifteen thousand, it may have been less), man himself stepped upon the stage and took possession;—complete; endowed with every human capacity; unmistakable; no predecessor; no herald; no introduction; no roll of drums; no flourish of trumpets; but he has ever since occupied the center of the stage in his own right. No scientist has suggested that he was the Neanderthal in disguise, and no one has denied his quality, his adaptation or his fitness; and today men of his own type are writing about him. They call him Cro-Magnon, (it is but a title), but his name is man.

He was unexpected and unpredicted. Dr. Osborn says of him:

"In the whole racial history of Western Europe there has never occurred so profound a change."

Only one other event in the history of living beings compares with his appearance, in suddenness, fitness, power or permanence. Such was the coming of Life itself, which is equally amazing, and equally without scientific explanation.

(2) The history of evolution begins and ends with the Cro-Magnon. He had no known predecessor, and none is even suggested. He could not have evolved, since there was nothing to evolve *from*. And since he was higher in type than man is now, there has been nothing for him to evolve *to*.

Yet he is here, and his qualities are known. If the scientists cannot explain him we find nothing but Genesis to which we can resort.

Hit-or-Miss—laws of nature.

(1) There cannot be a common stock for apes and man.

There cannot be a common ancestor.

There never was a common origin for living beings. By common consent the laws of nature have never changed. If therefore one kind of being could ever have descended from another of a different type, the same could and would be occurring now; but no one has even suggested this; and Dr. Newman and other able scientists have explicitly disclaimed it.

(2) The Cro-Magnon was the first distinctively human personality. Since he could be perceived and described it cannot have been impossible to recognize his predecessor, if one there was. His successors, to the present time, are also equally recognizable; but *none before,—ever*. Three hundred and fifty thousand years, (Dr. Osborn now says nine hundred thousand), have been scoured to find one. The scientists agree that the only known beings before him were not in his line of descent.

(3) Man was at his climax twenty-five thousand years ago, and has never equalled that stage since. Science, going backward in search of an ancestor, skips a million years, and comes upon an animal, to which it points as his ancestor. We

know what he looked like, for he still lives, and has not changed. We present his portrait, and it looks like a squirrel. Every stage of supposed advance is merely imagined. Not a step or stage of advance in all that time is pointed out.

(4) No development whatever from a lower state into a higher, even tending toward humanity, is indicated by any evidence vouched for by science, during the great stretches of time we have considered.

(5) No evidence is offered to prove anything as to the origin of man in protoplasm; on the contrary his physical history, by any tenable criterion, reaches no further backward from the present than to the Cro-Magnon.

(6) No line of descent, human or otherwise, is shown to have ever changed from one type or character to another; and therefore man is now essentially what he always was, and has never developed, nor could he have developed, from anything different.

(7) No evidence is even suggested to explain the origin of the human mind, nor of those powers of comparison and judgment which we call moral; nor of that faculty we call the will. Topsy's home-made explanation of this phase of development, ("he jist growed"), has not been improved upon by science.

Things affirmatively shown:

(1) Life, with its capacity to reach a predetermined outcome is admitted to be unexplained. But

since we know it to exist we must assume the intervention of some super-human intelligence to start it, and guide its processes. Otherwise they are unpredictable; and this, it is admitted, would make every theory of automatic action unsound.

(2) The embryonic argument is a misconception of both fact and logic. What is called "recapitulation," if it can be trusted at all, may as correctly be called prophecy; for instances to occur in the future will conform as clearly as those in the past; and it is not claimed that any being is now passing through these typical changes.

(3) "Similarity of structure" proves nothing, even if founded on fact; for then *dis*similarity would prove the opposite; and this would destroy the foundation of the theory, for the basis of the distinctive characteristics of species is *unlikeness*. Its boundaries are staked on that circumstance. It is the basis of classification by families or orders; similarity *within* groups;—unlikeness *without*. Was this always true? When and why did it change?

(4) Mr. Huxley said:

> "No one is more strongly convinced than I am of the vastness of the gulf between civilized man and the brutes; or more certain that whether *from* them or not he is assuredly not *of* them."

If likeness proves relationship, then *unlikeness* proves that there is none; and there is no departure between men and brutes now which equals the unlikeness between man and his supposed ancestor. Why not apply the principle both ways?

(5) The theory that man descended from apes or monkeys is now definitely abandoned. Have we not even better reason for abandoning the substitute doctrine of a common ancestor? The gap between apes and man is admittedly wide,—("immense," said Mr. Darwin). Why not test the theory of "structural resemblance" by that?

(6) Every new instance of descent out of type must have a *new cause*. There was no man in the earth when the process of descent began. The "common or tribal ancestor" himself was a low type of animal, and the original unit was an unconscious bit of protoplasm. Then nothing short of a miracle could produce, as the progeny of either, a man, both men and apes.

(7) Men and apes: both the offspring of ancestral animals, themselves in process of development; two distinct types,—one with a perfected body, a developed mind, and a spiritual quality; and the other remaining an animal, and condemned to forever remain such. Who can suggest a law for such a case which would not be broken with every new generation. Dr. Jordan said, "the theory of evolution is * * that every change is *orderly*, never the result of caprice or favoritism."

(8) It would be a "monstrosity" if a human pair should produce two children, twins, one a man child and the other an ape. Yet this would be inevitable in the case urged upon us by the theory of evolution. We would be horrified if we saw it; and our faith in nature's laws would be forever gone.

Result:

Thus the evolution theory does not explain, nor help to explain, the origin of man; nor does it prove, or help to prove, that he developed from any lower form, even physically. It does not even suggest a method by which he acquired, or might have acquired, those higher qualities which distinguish him from other forms of life.

It must therefore be rejected *in toto*, as applying to man, which is the subject of our present inquiry.

A group of Alternatives.

There are certain inherent difficulties in the application of the theory of evolution, not arising from the evidence, and therefore not within the topics above discussed, but which make it difficult to apprehend or accept, even if otherwise tenable. Among them are these:

(a) The process of development is continuing now, or the whole theory is academic. If it always has continued, and if the stages of development are still going on, why search into the past at all? Why resort to theory or speculation, and why search for proof by fossils of any age? Why not seek examples of the progressive stages *instinct with life?*

(b) Or new individuals are *not* continually beginning, and the whole history of evolution is in the *past;* in that case it is a mere abstraction, or remains a mere hypothesis, and does not connect with present humanity.

(c) Or if it *is still in action*, but no new types of individuals are beginning, and man is the maximum, then at last all living things, in every stage, will eventuate in man, or die without a climax. There will be at last no fish or birds or reptiles, and no grass or trees; or at least not with the capacity for further progression, for all will alike have reached the ultimate stage, and man alone, having mind and soul, may still advance. If he can have companionship it will be of living beings at their individual best; and all will be as they began in Genesis, with man at the head.

(d) If evolution explains the Cro-Magnon or Adam and Eve, continuing as a tenable theory to that time, but then ceasing to operate, it could never have been a law, for the laws have not changed, and human nature is the same now,—though perhaps on a lower level. If the rule of change or chance operated only that far, then present humanity is an accident, and no theory can explain it.

Epilogue

Epilogue

The writer claims no personal knowledge not available to every careful inquirer. He has made no first hand investigation of geological or biological facts, and manifestly could not. It must be said however that the same is true of nearly every other writer on the subject. This writer has, in every important instance, named his authority for the facts, and as these are in the ranks of proponents of the evolution theory it is to be supposed that they have stated the case as favorably for their own contention as their sources of information would admit. The facts themselves, however, supposed to be reliable, have been exposed to many opportunities for error. In only one case, so far as now recalled, has the first discoverer of a fundamental fact told his own tale. The discovery in the case of the Ape-Man of Java was by Dubois himself; but the jawbone which constitutes the Heidelberg man was picked out of the sands by a "workman, who broke it in two with his shovel"; and the earliest information of its discovery was communicated to the expert by "a man and a boy." The Rhodesian skull was found by workmen digging bones for lime in a mass of broken material in a cave. The Piltdown skull and bones are said by Osborn to have drifted,

with other debris, down a swift-flowing river, and were found in a like informal manner. Such has been the usual mode of discovery. The result is that in nearly every case the ultimate facts attending the discovery are taken on the assurance of simple and unskilled people, who were themselves without knowledge of the subject. It is not necessary to suppose that any one was tricked. The writer only contends that the most confident assertions of writers as to the important particulars in these cases are matters of hearsay and opinion. Some afterwards examined the results, and measured and judged of these from a position as close to the facts as possible, which this writer has not done; but most of this close work was done after the skulls or fragments had been "restored," which itself is full of opportunities for error. It is clear therefore that if the writer has reached in any case an erroneous conclusion, or if his application of facts has been incorrect, there is a like chance that others may have also done so. If the weight of opinion could conclude that question this writer may be outvoted, and also outclassed. This he readily admits, but urges that weight should also be given to the eagerness, and often the credulity, of the scholar, hoping to discover something new, and wishing, or at least willing, to be convinced.

Life, in its earliest movements and its course hitherto, is the chief object of our quest.

Whatever it is, we have it and know it. Whoever gave it, it was a gracious gift. Whatever its first movement, it was full of promise.

In its varied phases we have found it, for the most part, the bearer of many joys; and though none of us has been able by any of our processes or inventions to trace its source, we will join in hoping that when our conscious experience of it shall cease we shall somehow find that it has not even then been extinguished, but only transformed.

—THE END OF PART I.—

PART II

THE THEORY OF EVOLUTION

As Applied to Nature Generally

Introductory

Introductory

In Part I the writer has sought only to inquire into the soundness of the evolution theory as applied to man, judged by the facts recorded by leading observers of the day. He now comes to consider it from like sources as applied to other living things. Those observers, it is fair to say, have, with few exceptions, spared no pains or labor in research, and their candor in reporting the facts as they found them leaves, in general, little to be desired. It has seemed to the writer however that a few have used the soft pedal in significant places, and have emphasized unduly in others, as their artists have in their illustrations, indicating that some of the vagaries of the legal profession extend into scientific circles. In the nature of things their narratives are sketchy, and the whole story of evolution, theory and proof, is not to be found in any one place, nor in any work of a single writer. Dr. Lull's Ways of Life comes nearest to being an exception. Frequently a single phase is under discussion, and only the facts deemed pertinent to it are recited. To either formulate or weigh the theory as a whole therefore the scattered facts must be collected, sifted and correlated so as to be consecutive and complete. This the present writer has sought to do, and he

believes it has been done with fairness, and also with sufficient fulness to enable the reader to compare the evidence with the theory, and weigh them for himself.

As has been said elsewhere no distinction is usually made, even by the most candid proponents of the evolution theory, between man and other beings, but it is in general applied to living things as if all were on the same footing. This writer believes that man has been properly discriminated in Part I, and so in this supplementary discussion he will not be misunderstood if that is taken for granted. The effect is only this:—even if the theory of evolution is tenable, broadly speaking, man is still to be deemed an exception, for the reasons already given. If it is not tenable, and the defect is of a general nature, man will be included in the adverse result.

Another preliminary suggestion is important. Since we are to consider the merits of the theory we must have it adequately outlined. This is not so simple as it looks, for the hypothesis is not generally stated in clear form, nor in the same terms, nor with the same meaning. Some writers use definitions so restricted as to mean nothing specific enough to discuss;—as for instance, "Evolution means only change." In our quotations of definitions this or its equivalent will be often found. Yet even this harmless form is generally coupled with a discussion showing that it is partial only, and is not understood to represent even that

author's conception of the whole theory. Other definitions are stated in broader terms, and profess to include the descent of all from one unit of origin. This element is vital. No discussion of the merits of the theory can be clear or helpful which omits it; but even then it becomes more than a mere question of fact, to be taken on the word of an expert, because on its face the development of three quarters of a million different types from one appears incredible. It presents a problem in which the difficulties project from its mere statement;—as if Einstein, in explaining his theory, should say that the first step is to square the circle. Those who invite us to accept it should reasonably give us, with the proposition, some indication that it is possible; but since we are both to use the same materials, or materials from the same sources, this would resolve itself into the query whether the affirmative or the negative has the burden of proof. As we are here merely inquiring, we can disregard this, and proceed. Since we find no adequate theorem ready made the writer is obliged to outline it for himself, before he can apply his tests and reach his conclusion. This is not appropriate at this point, but will be done later.

The author uses frequently the same illustrations, and at times restates familiar propositions, in different connections, supposing he can thus make his point clearer than by introducing new ones, or relying on the reader's recollection. If in

this he has judged wrong he apologizes. His main purpose is not so much to condense as to clarify. "If I labor to be brief," says Horace, "I become obscure."

CHAPTER I

Unity of Origin a Fundamental Feature of the Theory of Evolution

It is the purpose of this chapter to show that the unity of all life, which is of the essence of the evolution theory, requires as a starting point a single nucleus or cell from which every group or family of living beings, as they now are, somehow descended. Whether or not this is credible is the ultimate point of our inquiry, but the argument will follow in its appropriate place. It is desired here only to paint the picture.

CHAPTER I

Unity of Origin a Fundamental Feature of the Theory of Evolution

Some definitions of evolution, and their meaning:

We have said above that definitions differ. Dr. David Starr Jordan said:

"By evolution, as the word is now used, we mean the universal process of orderly change."

Dr. Edwin Grant Conklin defines it thus:

"Evolution means only the transformation from an earlier into a later stage, according to natural laws."

But Dr. Herbert Spencer Jennings is broader. He says:

"The doctrine of organic evolution means simply that if you lived long enough you would see organisms begin as simple creatures, change shape and structure as a growing plant does, become diverse, transform repeatedly, until from one or a few types many would be produced."

Dr. Julian S. Huxley says:

"Starting from the single-celled type, life made its first great advance through the aggregation of many single cells into a colony. * * Next came the organization of the community of cells. * * Then came * *. Finally in man come the new steps in brain power which we call reason," etc., etc.

While these cover the same ground a part of the way they are not equivalent. The first two would not bear debate, as they merely state a plain fact. Further reading of their authors however

shows that their contentions cover not only change but origin, and thus are as broad as the other definitions; and such also are those found elsewhere. The difference in phraseology may help to explain the frequent assertion that all scientists accept the theory of evolution. If this means the theory as stated in the first two definitions above, the name of this author also may be added to the list, for he has not denied and cannot deny the fact of change. He sees it about him daily, though always closely limited, as is explained in this chapter below. He would not desire to be classified as an opponent of evolution on Dr. Jordan's criterion as quoted. It is the theory of common origin,—usually called "unit" origin,—which he is here chiefly examining.

Many of the verbal definitions therefore do not give us an adequate issue. We need to see clearly stated what the proponents themselves regard as the ultimate fact. A more explicit definition than any of the foregoing is to be drawn from the picture of the Tree of Life, used as a frontispiece in "Creation by Evolution." In Part I, (page 188), we have reproduced this, with its descriptive text. It is frequently referred to as correctly picturing the theory. Mr. Thomas Huxley suggested it; (Darwiniana, p. 216),—and Dr. Jordan, Dr. Newman, Dr. Conklin and others use it. The dedication of "Creation by Evolution" confirms our view that the Tree of Life is intended to assert that evolution means *origin* as well as *change*. That volume is dedicated "to those who seek evi-

dence of nature's universal creation." Other definitions found scattered through our text, are to the same effect. "The fundamental unity of life" is the essence of the theory.

Dr. Conklin,—The Direction of Human Evolution,—p. 16, defines it thus:

"Progressive evolution is the advance in organization from the simplest to the most complex organisms, *from amoeba to man.*"

A single species and a single individual at the start; an immense number now, all fixed in their present character, all descended from that unit. Such is the picture drawn by scientists, and such or corresponding is the theory to explain it.

The starting point is fairly stated by Dr. Conklin, in his recent book, where he is dealing especially with man, but his proposition in terms includes all living nature:

"His actual origin goes back not to Adam and Eve, and the Garden of Eden, but to more primitive races of man, and then to pre-human ancestors, and in the end to the earliest form of life on the earth. Between us and these earliest forms there has been an unbroken line of descent, an uninterrupted stream of life through all the ages."

It is affirmed that these harmonize, and that no law is broken. Somehow, we are told, the descending lines, beginning with an almost invisible speck of protoplasm, were "modified" into something different. What appear to be departures from law are explained as "variations." These explanations are vital to the theory, but though simple in form they are hard to explain, and harder to understand.

If they are sound this examination should make it clear. Most of the difficulties of the theory are inherent; others arise from a comparison with the admitted facts. A few are mentioned here:

First: Evolution, in its full scope, to be accepted as tenable, must be proven to be a *law*, or a dependable course of progression pursuant to law, by which the development of living things is and always has been governed, so that the stages of advance as they come into view can be recognized, compared and tested. If there is a law which admits of the kind of changes necessary to bring the new conditions out of the old it ought to be provable.

Variations and minor departures in progeny, in details but not in type, there must have been, as there are now, but since the course of descent contended for is averred to be pursuant to law we must confess that we cannot conceive even of any such simple change not caused by the impact of some other law, or of some extraneous force. But this is not in question here. The changes required to justify evolution are in type and character. Seven hundred and fifty thousand distinct species, recognizable and classified, it is said, emerged from one, without any departure from law.

If these changes were in harmony with law *then*, as is contended, they must be so yet, for it is admitted the laws have not changed, and this should be capable of proof. Our proposition is simply that the law must govern. Abstractly, the scientists also so affirm. This is shown by the

language of Prof. Conklin, who seems to be the most explicit on the subject. He says in his book mentioned above, pages 7-8:

"To understand what has happened and even what will happen, we have only to examine what is happening. This is what has been called the 'Law of Continuity,'—or more accurately the 'Doctrine of Uniformity,' namely the belief that nature is uniform, and her processes continuous, that the laws of cause and effect, of gravity, of conservation of matter and energy, of thermo dynamics, chemical affinity, life and death, heredity, development and evolution are the same yesterday, today and forever. * * All science is based on the fundamental belief that in natural laws there is neither variableness nor shadow of turning."

The writer does not expect scientists to challenge this. Certainly Prof. Newman, of Chicago University, will not, for he says, (Gist of Evolution, p. 19):

"Evolution is not to be accepted on faith, but only if it can be proved, or shown to be reasonable. It is merely an idea advanced to explain a vast body of facts about the past and the present. The theory grew out of the facts, and therefore must harmonize with the facts. If it in any respect fails to accord with the facts it must be abandoned, or else modified so as to fit the facts."

On page 45 of the same book he says:

"It, (evolution), is the one great law of life. It depends for its validity not upon conjecture or philosophy, but upon exactly the same sort of evidence as do other natural laws."

And on page 149, he says:

"If we can rely upon the fossil series to give us the correct order of events we may say that evolutionary

progress is definite and straight ahead in its course; in brief it is *orthogenetic* (definitely directed)."

Quotations from other scientists to like effect are found in Part I.

Second: Evolution thus is, and professes to be, a "*law* of nature"; but this it cannot be if on the whole we cannot rely on its uniform action. Nothing can be of the nature of law,—formal or informal,—which applies only here and there. Astronomy would not be a science if the date of an eclipse could not be computed. Chemistry would not be a science if its results under like conditions varied. The multiplication table would not be scientific if pressure of circumstances or the desire for a specific result could change it. This is what Dr. Jordan means when he says, (Creation by Evolution, p. 2):

"All change is *orderly*, never the result of accident or caprice or favoritism."

and

"Science is verified *knowledge*."

These admit the universal prevalence of law, now and always. They assert and defend a reference to law in judging the facts. There can therefore be no changes in the course of descent which could not be depended upon again, under like conditions; and if the theory of evolution, reduced to mere fact, differs from this it is not sound. We do not expect to be challenged therefore in this also, —that if departures or variations asserted by that theory can be defined or anticipated they are not only consistent with law but are a part of the

law, and must themselves be both uniform and continuous under like conditions; for if a law can be supposed to apply only where it seems to be needed to produce a result then experience is our only test, and as this can only be applied afterwards we would have no criterion at all, and nature would be chaos. If Dr. Newman does not so assert in "The Nature of the World and of Man," p. 384, we are unable to apprehend him. He is there arguing that law, in respect to the ordinary course of descent, and also in respect to exceptions and departures, is necessary to support any theory of evolution. He says:

"With variation alone, and no heredity, the living world would be a chaos, * * With heredity alone and no variation there would be merely persistence of one original form; the organic world would be at a standstill, and all organisms would be alike. With both variation and heredity but no selection or other guiding principle the world would be peopled with monstrosities, * * and there would be no orderliness in the evolutionary process."

Part of this, as argument, is not correct, but certainly we have here Dr. Newman's testimony to the soundness of our proposition, i. e., that heredity is rigid, under like conditions; and except as modified in its visible effects by the intrusion of extraneous forces, or other laws, it could produce, in ever so many generations, no essential change at all; also that any "variation" from type, which is not pursuant to law, but a haphazard departure, not being predictable, would be, in its degree, *chaos;* that even heredity and variation, existing

together, would produce no dependable result, but "the world would be populated with monsters." Thus the Professor, to justify his statement that law governs, and yet admits of departures in descent, which on its face is inconsistent, is moved to suggest a third cause,—natural selection,—which he calls a "guiding principle"; but unfortunately "selection" is even less dependable than "variation." In its nature it is *chance*, and nothing else. Dr. Osborn, in Origin and Evolution of Life, (Introduction) p. 9, says:

"Chance is the very essence of the original Darwinian selection hypothesis of evolution."

And Dr. Newman himself, speaking of the law of heredity, says, (quoted elsewhere), that he would be shocked if a sparrow's egg should hatch out anything but the same kind of a sparrow.

Some of the philosophers however see no consistent method, but only chance, to account for what they believe to be departures from type. A highly intelligent modern essayist, writing of this subject, gives us the views of the distinguished French philosopher Henri Bergson, saying:

"But life has an explosive quality about it, and each bit into which it explodes has power to reproduce itself, and is influenced by a new set of circumstances. Therefore, 'Life in evolving sows itself in an endless variety of forms.'"

It is hard even to use the term "law" intelligently if changes conspicuously out of character can be accepted as true, for they are not predictable or dependable.

Third: Laws are neutral, and will not yield to sustain a theory. Facts are equally neutral, abstractly, but they may be misconceived or misinterpreted. An argument founded on the supposition that a law of nature is variable could be at most only a guess, and a life lived on that theory, if it were possible, would be a chapter of accidents. This is the difference between law and anarchy. This also we suppose will be conceded. Chaos and anarchy are repudiated now by practically all writers on the subject, and yet they base their theory on supposed facts which appear to be governed by no law.

Heredity, all agree, is not a force, but a mode of action, but in it inhere continuity and uniformity so firmly fixed, that, as Dr. Conklin says, in the passage quoted above, there is in it "no variableness nor shadow of turning." Yet the divagations of living beings in the course of descent, as they are described to us, are so various and so unpredictable that even under like conditions we have no reason to expect them to happen again, and this is one test of conformity to law. Nothing in the supposed line of descent is definite or uniform. With no new cause, life, we are told, has shifted from one form to another, and sometimes back again. It doubles on itself, it is said, and doubles back. Its various forms find their habitat now in the water, now in the air, now on the land, and its physical equipment for each shifts to fit the changed medium. Its forms transport themselves in a multitude of ways, now

with legs, now with fins, now with wings. But at an unpredictable point and time these shifts and changes cease, without a new cause; and strangely they never recur. Such is the theory. Life itself of course has no form. We are here referring to its numerous incarnations. In another place we give many instances. This, it is asserted, was "*orderly*," and in accordance with law.

Webster's definition of a law of nature is this:

"A statement of an order or relation of phenomena which, so far as we know, is invariable under given conditions."

Mr. Huxley adopted and approved the rules of natural law as governing the course of evolution. He said, (Darwiniana, p. 232):

"No physical geologist now dreams of seeking, outside the range of known natural causes, for the explanation of any thing that happened millions of years ago, any more than he would be guilty of the like absurdity in regard to current events."

And Prof. Lull, "Ways of Life," p. 337, says:

"Of the *modus operandi* of evolution we are by no means so certain, but we may rest assured that it has been in accordance with great natural laws, some of which are as yet unknown.

Human apprehension of law may be inadequate, but every effect has a cause, though not always correctly judged; and the same cause, under the same conditions, will always produce the same result.

Fourth: Is it, or was it ever, physically possible for our three quarters of a million distinct types

to emerge from a single ancestor, or even a single pair? We have already seen (page 111) that the specific unit of origin pointed out to us had no power to reproduce at all, but only to multiply its own kind. But here we assume that it could and did. Did that ancestral capacity to reproduce function once only, and never again, filling the entire field with its lines of descent, each moving toward its own single outcome? Did that progeny emerge one at a time, each characteristic, and without duplication? Did each new generation merely add its quota, within a limited but definite field? Can the imagination conceive how it could come about,—with or without law? To the writer it seems that each stage must have its own miracle. Einstein's theory of relativity seems simple beside it. And yet it must be admitted that if in itself it was possible it ought not to be impossible to explain it. But no one does, and no one has, and it seems that no one can. Special creation presumes one miracle, but evolution a myriad.

How can it be explained, if at all, to harmonize with law?

Dr. Newman assures us that if the law of heredity stood alone no change at all would occur. A single line of descent would emerge from the single ancestor. The averment therefore is that it did *not* stand alone. This must be answered. By what was it modified or aided, and is it always so? Dr. C. Stuart Gager states the rule assented to and confirmed by all the others, in this language: "Every living thing comes into exist-

ence as the offspring of other living things *similar to itself*."

Fifth: Whatever the early course of evolution a time must arrive when individual beings become recognizable and historical. There was inevitably to come about, for example, the little horse of Fayum, (whose fossil is well known), himself to be the progenitor of the whole group of horses. From his time in the fossil period to the present, whatever the doubt about the order of succession, there has been no departure from type. The whole line are still horses. But the advance from earlier times to that point was, by the theory, a continuous departure from type. Otherwise the horse could not have emerged from the speck of protoplasm. How it can be that they were constantly departing from type, though the law was not *different* then from now, is not explained. The "tribal head," the first individual of every family or group capable of being recognized and classified, must have emerged in like manner,—i. e. it must be the "orderly" outcome of its own line of ancestors, and the individual "as is" must be "similar to" its own predecessor at every new generation. Anything else would be chaos, and the little horse of Fayum might have never happened, but something else instead. The law of heredity therefore, to fit in with the "tribal head" in due time, must at each new generation not only *admit* of a variation from the prior type, but *require* it; and yet it must, in each case, be governed by the *same* law prevailing now, and

equally definite; and all its progress, before the time of the tribal ancestor, must be toward a predetermined end. *After that time however there could be no change from type.* If this correctly describes the course of descent then for an immense proportion of the course of every life it was always departing from type, and always breaking its own rules. Such then is the *theory* of unit ancestry, and such its sudden change at or before the time when the developing being becomes recognizable.

It walks directly over a gap so wide that seven league boots would be inadequate, but never halts nor takes account of inconsistency or impossibility. A theory can do this, for it may ignore the features it cannot prove.

Mr. Darwin saw this difficulty, and the risk of perverting the only sound doctrine of variation, and said, (Origin of Species, ed. 1, p. 457,—quoted by Mr. Huxley in Darwiniana, p. 232):

"The innumerable species, genera and families of organic beings with which the world is peopled have all descended, *each within its own class or group*, from common parents, and have all been modified in course of descent."

Sixth: The present writer has not averred that there has been no "variation" in the course of descent. For example the differences in size, color, temperament, which we constantly find among progeny of the same parents; and also those changes which result from new climatic conditions, or in food supply or environment. These are "variations," but not changes of type. He thinks such changes have always been normal, but,

in the language of Mr. Darwin,—"each within its own class or group"; but how then could they, as the theory requires, ultimately depart so generally and so far from the original type, and form so many distinct families or orders?

If Mr. Darwin can be supposed to mean by "modification" a shifting from one family or type to another, which he was careful not to say, and did not say, he contemplated the impossible, and with all his learning the law is against him. And when or if he proposes to accomplish such departures by his doctrine of natural selection he steps at once into chaos. His suggestion of "modification" therefore, supposing it to be the same repeated in similar terms by Dr. Newman, and implied by the others, would mean chance, because it would be outside of law; and chance also because it would be unpredictable. Even Dr. Newman, who proposes "selection" to eke out the inadequacy of heredity and variation, must admit that descent by selection is unpredictable; and Dr. Francis Arthur Bather, a distinguished geologist of London, has said that "the power of correct prediction is generally held to be the strongest proof of any scientific theory," (Creation by Evolution, p. 110).

Seventh: By the development theory nothing living, in any line of descent, has come to us as it started. The central fact assumed is that our many distinct species began with one unit. As an abstraction it is explicitly admitted that the laws of nature, especially heredity, have always gov-

erned the processes of life; but this is not without limitation. If heredity is persistent and uniform the evolution theory is unsound. Room must be found for exceptions and departures, and new terminology must be invented to describe them. Descent according to law, *with modifications*, is a phrase often used, and this is supposed to equip the law of heredity with a degree of elasticity sufficient to account for the changes in type and species involved in the theory. The writer knows of nothing to justify this. He is here assuming the verity of the proponent's facts, in so far as the scientists themselves agree about them, but is unable to see that such changes in essence and character are consistent with any rule, custom or program worthy the name of law.

Eighth: We have given above a number of tests, deemed sound, but a comparison with the operation of a different law may also be illuminating. Electricity is perhaps the nearest parallel. A marvel of mechanical skill is the telephone cable, now in common use. It resembles the trunk of the "Tree of Life" nearly enough to justify a comparison. It is composed of eighteen hundred delicate pairs of wires, each insulated, all crowded into a shell less than three inches in diameter, each carrying, from speaker to hearer, intelligible human tones. Much like that, in form, is the "potentiality" of a like number of lines of descent, as supposed by evolution; and yet how different they are in every vital aspect. Life, according to the theory, begins with one unit, but multiplies

itself, it is said, *with no new cause*, seven hundred and fifty thousand times, without confusion, each line, when it leaves the trunk, emerging in a definite living type, different from its original, and increasingly tending to be different. The operation of electricity is otherwise, as we would quickly find if we withdrew the insulations in the cable. Life and electricity are much alike, and neither has an explanation. Is the law indeed rigid in one case, but elastic and variable in the other?

In development there is, it is said, a *common source* for all these differing lines, but in the cable they are independent throughout, and insulated. No one voice and no single personality starts the impulses along the several wires. Each has its independent origin. There is no such thing as "variation," or "transmutation." As the individual tone enters the cable so it emerges. Any communication may cease, and a new one begin, with independent initial impulses at the starting point, but they have no more intercommunication by the way than if they were a yard or a mile apart. If we can compare the "Tree of Life" with the cable at all the resemblances are physical, mechanical and artificial. The aggregate of "potentialities" are merely bound together in the "Tree of Life," and that only for a time. Insulation is impossible, for interchange is the essence of the theory. Immediately they begin to separate in the tree, and change character, and branching begins, spreading and expanding automatically, each a different form of life; but the lines bound

together in the cable come out as they went in, with no faculty or characteristic changed. If heredity is like that, then only the kind of life which entered could emerge. The law of electricity does not admit of variation or transmutation, and such we would expect heredity to be. Such indeed it is said to be by the experts when they speak abstractly. If so these shifts in character asserted to support the theory are incredible.

Our effort here has been to show that the proponents of the evolution theory, although professing to support it by the law of heredity, are deceiving themselves about its application. That law is direct, persistent and uniform, like other laws. It is *not* devious, nor variable nor uncertain. It does *not* depart from its steady way, and *cannot* be diverted by anything less than a new cause. Prof. Newman, in his language quoted above, so affirms. Abstractly we do not differ about its nature, and we agree that the course of descent, if fully governed by it, is not capable of any departure in type. Yet the theory of development both admits of and requires a *continuous series* of departures from type, and these not temporary but permanent, leaving the latest progeny different from the ancestor, and different from each other, and forever incapable of return. It is remarkable, and not to be overlooked, that at the time of the "tribal heads" this capacity for shifting and change ceases, and never again resumes. By what law can that be explained? The event itself needs no explanation. The law of heredity here begins

to operate, and thence forward there is no break. The theory is not said to be disingenuous, but only untenable. By that theory a great stretch of time intervened between the original cell and the tribal heads, and in that period the supposed transformations must have occurred. That was, as Dr. Thomson says, "the period of the dim mists," about which we have no knowledge whatever.

Our suggested definition.

Although the theory of evolution is so diversely stated, it is in essence specific enough to be apprehended; but it is incapable of discussion in any narrower form than that of "unit origin." It is a doctrine of descent "with modifications," and the "modifications" are necessary to the theory. Finding it stated so variously this writer must outline it in his own language, as he gathers it not only from the definitions of its proponents but from their arguments and assumptions. An intelligible statement of it seems to be this:

Every genus, order, kingdom, type or family, (by whatever name called), now existing, beginning with the unit of origin mentioned above, after many changes emerged, in the course of descent, in an individual or type known as a common or "tribal ancestor," recognizable, and capable of classification, ascertainable by tracing that line of descent backward from the present. By the special creation theory that individual or type is regarded as the first visible result of the divine fiat, and be-

gins, in each instance, that order or family "after its kind"; but by evolution it is said there was a long precedent series of generations, beginning with one individual. At the head of our three quarters of a million classified species of living things there will be found, tracing them forward or backward, an individual, such for instance as the horse of Fayum, whom we here designate as the "tribal" or family head, *one for each*, known as common ancestors, usually of a single line, but sometimes of a *group* of allied species, and always in the same field or type; each setting the pace, in type and character, for those in the same line of descent who shall come after them. These "tribal ancestors" may appear at different time periods, because the progress of evolution is not supposed to occur in all types at an equal rate. These, of course, are themselves descendants, and ought to be traceable, but to sustain the theory their line must vary from type to type, through incomplete transitions, converging at last in a common ancestor of all, who was the original unit. From the time of the "tribal" head however, it moves in regular succession, and in recognizable individuals, with no new change of type, to the present.

This formulary is sifted out of great detail and much argumentation, but states correctly, as the writer thinks, the ground the evolution theory must cover to account for things as they are, on its assumption, i.e. that all living beings are tied together in "the fundamental unit of life." To verify our statement that in the scientific view every

family or kingdom has had its own recognizable common ancestor, at an intermediate stage, we quote briefly from a few authoritative writers in "Origin & Evolution of Life." It will be observed that the "ancestral" form meant is the head of his own family or order, but is *not* in any case the "unit of origin," which is the starting point of every kind or order of life.

"The amphibia are believed to have evolved from an ancestral ganoid fish."

"From this group diverge the ancestors of the reptilia," etc.

"The environment of the ancestor of all the reptiles was," etc.

"The reptile ancestor of these eighteen branches of the class Reptilia," etc.

"Huxley was the first * * * to prophesy that the very remote ancestral form of all the mammals was," etc.

"Ancestral trees of the mammals."

"The ancestors of the whales."

"The discovery in the lower Eocene of the ancestors of the modern horses, tapirs," etc.

"This law of uniform evolution and of the development independently from the same ancestors of closely similar characters is," etc.

The most striking instance is man, who is himself said to be traceable to a common ancestor of "primates," a group comprising with others, the apes and humanity. This has been considered in Chapter VI of Part I.

With the foregoing statement of the ultimate point, the scientific proponents, as a class, will probably not seriously disagree. By that theory the different family groupings, now and from the time of the tribal ancestor quite unlike, are

themselves the progeny, traced backward to their neutral origin, of a single ancestor, having only potentially, if at all, any of the characteristics of his descendants. This original unit, was, it is said, the ancestor of men, reptiles, birds, fishes, insects, animals and plants, with all their branching lines, to the present small detail.

We are here inquiring into the soundness of this theory. We are aware that among the main criteria of verity are uniformity and continuity, which are admitted to be tests of soundness. Prof. Conklin so states in terms, quoted elsewhere, and generally asserted. What these mean, and how they operate will be the subject of our next chapter.

CHAPTER II

Continuity or Not?

The chief purpose of this chapter is to show that since the law of descent has long been well apprehended the evolution theory cannot be sound unless it conforms; also that such conformity must be persistent, and not in spurts; *much less* can these be evasively or artificially harmonized by doubling or twisting; yet we cannot fail to observe that the facts said to support the theory are largely of that nature; yet this is apparently not regarded as a defect.

CHAPTER II

Continuity or Not?

Gushes and spurts, as compared with persistence.

Our chapter topic might well have been Continuity or *nothing*. There is in the discussion of the subject of evolution a certain confusion between the law, which is always in operation, and its effects, which are sometimes observed to differ, but we venture to assert that this is only because of the temporary dominance of a new cause, or a conflict with some other law. Experience and observation teach us that even under recognized natural laws expected results are not always realized,—as for example, in predicting the weather, —a storm is moving rapidly from one direction, and we prepare for it; but transverse or opposing air currents from a new source "divert" it. This may well be called a "variation," but it is not in any proper sense a "mutation," for neither has the law changed nor its application, but only the net result of several causes.

Evolution is not a force. Dr. J. Arthur Thomson says "it is a mode of becoming." It does not *create* the laws of action, but *pursues* them. *Life* is the actor, and its movements are continuous and uniform under like conditions. Thus every change or departure requires a new cause. This seems clear, but to meet the needs of the evolution the-

ory it is disregarded, for the new cause is denied, though its effects are asserted. Even the intervals of change at the recurrence of progeny, otherwise orderly, cannot be the same. Compare the swift and frequent generations of the ephemerae, or the multitudinous spawning of the fish, with the slow and infrequent progeny of the elephant. Even cooperation, or ductility, or both, cannot account for these by any conceivable kind of progression having the quality of law. A new time period, and a new method must arise when the theory requires it; and this will occur at each new birth of progeny, and these must be of many types, unlike their parent and unlike each other, and each itself initiating a series of new and diverging lines. No law can, it seems clear, have that variable quality, and no law like it is mentioned. If it ever existed the same effect could be seen now, for the laws do not change. It is true the operation of law is sometimes disappointing, but even so the law is the only path by which life can automatically move. Anything else would be chaos. The fall of a bridge is not because there is no law; nor is an explosion, nor a tornado. Nor do these import chaos or confusion. The inevitability of the laws of nature is admitted by the statements, (quoted elsewhere), of many scholars. As a starting point for our present chapter we quote one more. Dr. H. W. Bates, (quoted in Creation by Evolution, p. 174), says:

"As the laws of nature must be the same for all beings, the conclusions furnished by this group of insects, (butterflies), must be applicable to the whole organic world."

And in this connection we repeat the explicit language of Mr. Huxley, quoted above:

"No physical geologist now dreams of seeking, outside the range of known natural causes, for the explanation of anything that happened millions of years ago, any more than he would be guilty of the like absurdity in regard to current events."

The evolution of living things, then, can be no other than life in action or progression *according to law*, and it cannot change in direction or character unless the law permits, or a new cause compels. Yet the most extraordinary changes are said to have occurred, not consistent with any law, or any uniform program. We learn from the scientists that immense fields and kingdoms of living beings, i.e. the bees, ants, birds, reptiles, invertebrates, etc., while busy among themselves, have made no advance in millions of years, but remain as they were, and some have never varied. And if the scientists are reading life correctly the facts of automatic movement are often so eccentric and unpredictable that no law could govern them. One of the most strongly asserted facts is that life does not always follow direct lines of advance, but often proceeds in irregular directions, none of which are in harmony with any theory or any law. This resembles impulse, and could only be accounted for by temperament rather than organization.

Prof. Edwin Grant Conklin, of Princeton, in Evolution of Man, p. 183, says:

"It is probable that the entire race may suffer retrogressional evolution, and return to a less highly organized

condition. Many other types of animals have passed the climax of their evolution, and have then declined, and their degenerate representatives still survive."

and on page 165:

"In any line of evolution progress is most rapid at first, and then it slows down until it stops; and in every well tried path of evolution progress has practically come to an end."

Dr. Herbert Spencer Jennings, Creation by Evolution, p. 25, says:

"Evolutionary changes move in many different directions. Some organisms degenerate; others grow more complex and become adapted to more varied conditions; still others hardly change at all. The process cannot be uniform; it produces diversity, not simplicity."

Prof. A. Lloyd Morgan, Creation by Evolution, p. 343, says:

"The next thing to realize is that, throughout nature, there is by no means always progressive advance. In every field of inquiry we find abundant evidence of that which is the very opposite of evolution and is sometimes called 'degeneration' or 'devolution.' * * We find throughout nature not only upward passage from lower to higher but downward passage from higher to lower—sometimes one, sometimes the other; sometimes both side by side."

Prof. Conklin, The Evolution of Man, p. 150:

"Even a cursory study of the living world would justify the opinion that evolution has proceeded in all possible directions; crab-like it moves forward, backward and sidewise."

The same author, in his book of the current year, says:

"In the course of evolution organisms have moved forward, backward and sidewise."

Many instances of what is called "reversed" evolution, or even *double* reversed, are mentioned elsewhere. If these are more than imaginary, or at least not erroneous, they must be dealt with in supporting the theory. How they can be explained consistently with any law this writer cannot understand; but this need not be considered here.

With these features of evolution in mind let us see more in detail how closely by periods, differing in kind, the theory conforms to the facts.

First, the period preceding the fossils.

We direct our attention first to that immense stretch of time said to precede the fossil period. It is the "period of the thick mists," as Dr. J. Arthur Thomson describes it. The whole hypothetical advance of nature, and the multiplied changes of type must have occurred, if they occurred at all, between the single cell of origin and the fossil period. At the latter point of time, it will be shown, changes of type forever ceased. For the present we must assume that there was such a period, and such a world, and it is in that sphere that we are to find the basis for the scientific contention that all living things descended from a single unit of origin. We are now to inquire whether the essential feature known as uniformity then applied, or could have applied. If the original ancestor, for example, did *not* undergo any change of form or type then life as

it now is cannot be accounted for scientifically, for there would have come down to us only the single line. Such, they inform us, is not the case, and for them this is out of the question. The first order and the second, and every other *did* change, they say, and continued to change until our full quota of differing types and families was reached. But suppose the first stage of life *did* change form, and the second or the third did *not*, then changes of type would stop at that point, and our present world would be accounted for only as it then stood. The assertion of science is that these beings, second or third in order, and the others in succession, *did* also change, and nothing else will support the theory. Authentic history of those early stages there is none. Certain negative things, however, are known, tending to show that such advances, even during that period, are imaginary, and some of these are convincing. The protozoa, for example, the single celled predecessors of animal life, in their day covering the whole field, never advanced at all. This is so judged because they exist now, in a highly primitive form. Dr. Lull, Ways of Life, p. 15, says:

"Protozoa alive today have been Protozoa since the Archeozoic age, and apparently can become nothing else, as the Archeozoic environmental conditions have continued and probably will continue as long as life endures."

Dr. Osborn, Origin & Evolution of Life, p. 88, defines "protozoa" as the most elementary form of animal life. They were asexual, and propagated

by division, with no change of type, as we have shown elsewhere.

If these did *not* advance, then other substances of higher orders with which the protozoa are even now found in contact could not have evolved from them; and if this is correct the whole field was blockaded at that point, and there *never could have been any development*. A mere accumulation of cells, which is said by scientists to be the second stage, would be no *advance* in type. If the Protozoa never evolved at all, although they survived, the lines following them, if such there were, of a different type, must have had a *new source*. The same would be true if they survived but lost the power of reproduction. This is said to be the fact. Dr. Lull, who is an outstanding authority, says, (Ways of Life, p. 86):

"Protozoa have given rise to more complex animals in the distant past as a result of evolutionary change. *Today they no longer seem able to do so*, as no new phyla of animals have arisen, apparently, since the beginnng of the Paleozoic." (20,000,000 to 25,000,000 years ago.)

Prof. Kellogg, (Evolution, p. 70), says:

"There are various species of one celled plants and animals now living in the oceans which can hardly, if at all, be distinguished from species which have been found in the earliest (oldest) stratified rocks."

They could not of course have given rise to any other kinds of life if they blocked the way; nor could any have followed which depended on them. If evolution ever was progressing from one form to another "in orderly advance," and protozoa

were subject to that law, or were next in order of succession, but failed to respond, subsequent progress *without a new cause* is impossible; yet this is the evolution theory.

This looks like a serious objection, but the writer has seen no answer. Evidently none is possible except to assert error in the *facts;* i.e. that those scientists who teach that the protozoa have never evolved are wrong; or that the protozoa are not links in the chain of descent; or that they are not in the same line. Either of these is hard to maintain.

The lack of ductility, however, is not limited to the protozoa. Protoplasm, which is the basic substance with which Life acts, exists now, in its original form. This, it is said, was the first ancestral substance, and as it never changed it must have blocked the way for all change in others, unless it began later, in which case a *new cause* must have intervened, and there was no unit ancestor. Each of the similar blockades elsewhere mentioned, total or partial, of which there are many, is equally inconsistent with the unit origin of living beings, for a like reason, and they seem to challenge a new explanation. The theory of development is not consistent with descent in a few lines only; and equally it does not admit of a *hiatus*.

Dr. J. Arthur Thomson, in one of his recent Yale lectures, "Concerning Evolution," p. 95, says:

"Continuity however is an essential part of the idea—a continuity of natural processes."

Absence of proof is as fatal to the theory as adverse proof, and the facts, except inferences drawn from conditions as they now are, are lacking. Beginning with protoplasm, and thence to the time of the fossils, we find nothing but vacancy,—a total lack of factual evidence. To prove this we quote again from Dr. Lull, (Ways of Life, p. 117, 118):

"We speak of the Archeozoic (the earliest geologic period), as the period of unicellular life, both plant and animal. This, however, is *entirely inferred, as there is no direct evidence of their existence.*"

The same author, in Creation by Evolution, p. 257, says:

"Thus the missing links in the early evolution of animal life constitute for millions of years the entire chain."

And of the second great Geologic Period, known as the age of the Invertebrates, still within our "period of the thick mists," nothing more definite is known. During that period there were no fossils, since there were no skeletons to fossilize, and therefore no preserved or recorded history. It is even unknown except by inference whether any kind of life, or if any what kind, then existed. Dr. Lull, (Ways of Life, p. 118), says of the Invertebrates:

"Practically all of the invertebrate evolution, the establishment and elaboration of the great stocks, *lies beyond our ken.*"

At the present time an immense proportion of the living things fall within that class, and there is

no reason to suppose the proportions were ever different. Dr. W. C. Allee, (The Nature of the World and of Man, p. 261), says:

"Invertebrates make up the bulk of the animal kingdom. In round numbers, there are some 600,000 recorded species of living invertebrates and only 36,000 known species of vertebrates."

The facts, real or supposed, relating to life conditions during the whole period prior to the age of fossils, are so difficult to harmonize with any theory of evolution that most of the writers dealing with the subject pass it very lightly. Dr. Osborn says of that period, (Origin and Evolution of Life), "We are compelled to assume," etc. We have elsewhere presented our reasons for believing that the supposed development during that period was physically impossible, (Chap. VI, Part I). We have also shown in this chapter and in previous pages that there could have occurred there no changes in type. We add here that if they could and did, there is no proof of it, and no means of proof. Nothing is known, or can ever be known, of that period. It seems to be all a dream, and the scientist with the most vivid imagination can depict the strangest events.

Thus evolution is not proved, nor the existence of any living thing which could evolve, within that vast stretch of time from protoplasm to fossils, although there, and there only, by the theory of evolution, living things should and must have been developing from one type to another. Not only is there nothing to prove the advances required by

the theory of unit origin during that period, but the proofs are to the contrary, for the law of heredity stood squarely in the way. Life is a miracle, or much like one, at any stage. Each individual originated during that period in the same manner as now, we may believe; or we might so believe but for a certain other extraordinary change which we are taught by the evolution theory must have occurred within that period, i.e., the change from the sexless form of the amoeba to the *bi-parental* ancestry, which has prevailed ever since. Thus the query how life originated in each type becomes no easier by being pushed back even an infinite number of generations, nor by reducing the lines of descent from many to one. For much the greater proportion of geologic time then we have no light on the subject, except by inference. Those promoting the evolution theory assure us that these inferences are drawn from life *now subsisting*, which may not have been the same, indeed it *could not*, by the theory itself, for at that time all beings were in the formative stage. Prof. Ernest William MacBride, of London, says, (Creation by Evolution, p. 61):

"Comparative Anatomy and Systematic Zoology take us only a little way, for we have no reason to assume that the forms of animals have persisted unchanged to the present day."

Not only is the story of life very vague during the period of invertebrates, but also later. The vertebrates, as a type, whose history begins with the fossils, and therefore is easier traced in inde-

pendent lines, throw light on the question we are considering. These include all beings having a bony structure capable of fossilizing, especially backbone. We learn something of them from the earliest fossil discoveries, said to be some 500,000,000 years, but we have no more knowledge of them during the "thick mists" of the invertebrate period than of the others, though they are supposed for a long time to have lived together. It is said that they *began earlier and continued later*, but the time or manner of the rise of the vertebrates is unknown. Dr. Lull says of them,—"Ways of Life," p. 125:

> "The origin of this important group, (vertebrates) is lost in the darkness of time. * * Various hypotheses have been advanced as to the ancestral home, the invertebrate stock out of which the vertebrates arose, and the moving cause for their initial evolution, none of which has a sufficient body of proof back of it to make it anything other than a mere working theory."

We find therefore no affirmative proof to support any theory of development prior to the fossil age, but, as said elsewhere, we are not without proof to the contrary. The continuous existence of those laws of nature, to which the expansion from one to many is said to have conformed, is asserted by every scientific writer, and is a part of every definition. It is not contended that the development relied on by the theory could have come about without such laws. But they do not operate in that manner now. A change must have occurred in the laws if they ever did, but this is not contended. Again, the invertebrate did not merge

into the vertebrate. They continued side by side, and still continue; and invertebrates are said by scholars to have been static since history began, (which is the fossil period *continued to the present*). They do not evolve now, and all that we know suggests that they never did. If there is any presumption on the subject it ought to be that the condition of the invertebrates was static *before* the fossil period, as it has been *since*. If we were to guess, that is the more plausible and probable. They may conceivably have originated in their present form, or they may, as the theory permits, have begun in a different form and reversed, and thus attained their present condition. The theory of evolution therefore, down to the fossil period at least, seems to be wholly theoretical, and to have no facts to rest upon.

Second: The period beginning with the fossil era.

The fossils help us to verify or correct our theories on this subject, although, for lack of information, they can teach us little, and in most lines of descent nothing, either as to continuity or order of succession. We will in another place consider the progression of life *since* the fossil period began, and expect to show there that not only the "record of the rocks" but also common observation prove that within that period there has been *no transmutation of type*. All the facts developed by scholars are to the effect that the individual types of field, family or order, which then became recognizable, have continued to progress,

each in its own line, and not otherwise, to the present. The horse and the elephant, elsewhere dealt with more fully, are examples; and such also are the evidence and arguments relating to man. This subject in detail belongs in another chapter, but is so plainly true that we assume here that all changes of type to connect with the original unit of origin, must have occurred, if ever, in the time *before* the fossils; but of those events we are left to guess, and we shall probably never have any more definite knowledge than we have now.

We come next to see whether this view is not confirmed by other lines of just reasoning.

CHAPTER III

The Law Governing Descent, and How to Trace It

In this chapter the dependability of law generally, and especially the laws of nature, will be considered, and here the writer hopes will be shown the essential weakness of any theory built upon departures from them.

CHAPTER III

The Law Governing Descent, and How to Trace It

What is law?

The writer's use of the word "law" should not be misunderstood. He is aware that the so-called "laws of nature" are not, like some others so called, formulated rules of behavior, requiring obedience under penalties. He does not intend to philosophize about them, but only to indicate that they have always existed, and that from their operation their nature is to be deduced. For our present purpose they are taken to be normal rules of action, observed, wrought out and formulated from observation and experience. They are a part of the essence of every living thing,—conscious or not. New discoveries may add to our apprehension of these rules or modes of action, but as we know them now, under like conditions they are uniform, inevitable, dependable, and irresistible. On this, as an abstraction, scientists do not differ. We are concerned here with the meaning of the term "law" as applied to the descent of living things, especially that law known as heredity. A few outstanding particulars, briefly summarized, may help us to discriminate:

1. Any "law of nature," including heredity, is a lesson of experience, and can be ascertained by observation, or by records of observation. If

knowledge ever becomes perfect these laws can be permanently formulated and codified,—for all the facts will be known. In the meantime inaccuracies in apprehension may be expected, and errors corrected by newer knowledge.

2. Nevertheless in heredity, as in other laws, their course is as definite and inflexible as if framed and promulgated by a governing monarch. We have shown above that this is conceded by the experts. A given cause, under like conditions, will produce a like effect; such are the recurrence of day and night; the round of the clock; the rising and setting of the sun; the movements of the heavenly bodies; these and many others, equally unvarying, are instances. Dr. Conklin's description on this point is very explicit. We are not here discriminating as to their distinctive fields of action, nor their abstract nature as distinguished from their concrete effect, but only their inevitableness and certainty.

3. All the affairs of our complex lives are staked on their uniformity and persistence. Strength of materials; useful or injurious foods; points of the compass; plans for tomorrow; predictions of the weather;—indeed the outcome of almost every act of life depends on this assurance.

4. In many instances the anticipated results disappoint us; the laws themselves appear to be subject to variation or exception. The departure from predictions of the weather of tomorrow is an example; or in heredity differences in the offspring of the same parents,—animal or human; but this,

as stated elsewhere, is the result, not of uncertainty in a given law, but of the intervention of other laws and forces.

5. If any supposed law should work out (under like conditions) one way today and another tomorrow, or in an opposite direction; if the sun should ever rise in the west, or set in the east; if for any reason its uniformity should fail, or its results vary, we should have to conclude, not that we were mistaken about the law's existence, but perhaps that there were other laws or forces interfering. But we have learned as an inevitable conclusion that *every* movement of nature is according to law, and that under like conditions they do not vary. This is fundamental in respect to evolution, and is asserted or implied by every writer.

6. Heredity is as definite and as inevitable and inflexible as any other law of nature. If it were not so the world would be full of monstrosities. No one states this more clearly or strongly than Dr. Newman, in Nature of the World and of Man, pp. 383-4, (quoted above).

7. When therefore scholars use abstractly the term "variation," in connection with heredity, they cannot be supposed to mean that there is anything uncertain or haphazard about the law, for that would be to deny it altogether. When not pressed by the needs of the theory to defend "mutation" they can only mean that its *results* are affected by the operation of other laws; or that the law pursues, by its own nature, an irregular

course; but if it were so such departures from normal would be as predictable and as specific and assured as any other movements of the law,—indeed would be a phase of it,—as inevitable, under like conditions, as the main rule. We know that they have never changed; what they are now, when correctly understood, they always were; and in this we have Mr. Huxley with us.

8. The familiar changes, correctly called in authentic works "variations," are also in most respects treated by the scientists as governed by law, equally inevitable, persistent and consistent. For illustration see the discussion by Prof. Kellogg, (Evolution, p. 123) of Mendel's laws, which are believed to explain differences in offspring by the operation of law. They are founded on the proposition that differences between children of the same parents, in eyes, hair, complexion, features, size, shape and temperament, though called "variation," are not accidental, or hit-or-miss, but are to be anticipated, and are themselves a part of the governing law.

9. The law of heredity therefore is, (though subject to those new things we have still to learn about it),—not subject, and cannot be, to unpredictable or heterogeneous departures. Such as these are they could be caused only by the intervention of other laws, depending on other causes; or in questions of descent by differences between parents. (See the definition of Mendel's laws.)

10. We illustrate our proposition that this is always so, by a few proven instances, furnished by

the scientists themselves;—Horses have produced progeny now, it is said, for five million years, but with all their variations in size, shape and coloring they are still horses, and no horse has ever given birth to an elephant or a cow; "no one ever saw a green horse or a purple cow," said Huxley; "a whale does not produce feathers, nor a bird whalebone"; "the bee can never produce an elephant"; "it would shock us if a sparrow's egg ever hatched out anything but the same kind of a sparrow."

11. No case is cited, to the writer's knowledge, where a descendant of one kind of being was of a different type from his parents; and yet the evolution theory is built on the assertion that our three quarters of a million distinct species of living things, which we now know can never cross the boundaries between types, are all descended, according to law, from one neutral, sexless, formless speck of protoplasm.

It is most instructive to read Mr. Darwin's apprehensions about this, and his endeavors to explain it. He says, (Origin of Species, Vol. 1, Appleton's Ed., p. 207):

"Is it possible that an animal having, for instance, the structure and habits of a bat, could have been formed by the modification of some other animal with widely different habits and structure?"

His sole answer is stated on page 209:

"I will here only state that I believe the answer mainly lies in the record being incomparably less perfect than is generally supposed."

This means that the absence of evidence does not in his opinion disprove the theory. But if the *facts* are first found, and the theory devised to fit it, as many scientists agree with us ought to be done then, as to the bat, and its origin from something different, which Darwin himself deemed so out of harmony with law as to "stagger" him, it is the *theory* which must be in error.

This is shown, as to the bat, in particular, by evidence (quoted elsewhere) that in all the centuries of observation it has not varied at all; and that there is not a particle of evidence that it evolved from anything else.

12. It is admitted that transitions or mutations could not happen if descent is governed by the law of heredity alone, but it is insisted that "variation,"—though limited by the known character of that law,—if slight in each instance, but continuing through a sufficiently long series of generations, may be,—must be,—has been,—effectual to produce all our widely differing types, including man; and this although it is a part of the theory that the individuals can never themselves produce progeny of another type. This supposed capacity to transmute, admitted not to exist now, is contradicted, the writer thinks, as to that time and all time, by the nature of the law, which does not, could not, and never did yield a particle; and as to an immense field it appears affirmatively that no change at all has ever occurred. The transmission of life then is, and has always been, in distinct lines, *unless changed by a new cause*, which, since

a new cause is devised, does not alter the proposition.

The foregoing lays the foundation, as we think, for the discussion above alluded to, as to the proper mode of tracing lines of descent, and the misleading results of errors.

CHAPTER IV

The Right Starting Place for the Story of Life

In this will be shown the error of the scientific method of argument, under which the theory is framed before the facts are known, and the equal error of those of its proponents who seek to confirm or support their hypothesis by tracing lines of descent backward, contrary to the course of nature; the author also hopes here to show the morass into which this leads.

CHAPTER IV

The Right Starting Place for the Story of Life

Reducing the complex to the simple.

In one of the chapters of our Part I,—entitled "Forming and reforming a theory," we considered the advantages of beginning a scientific inquiry at the beginning, and conducting it forward like a true biography, with no preliminary theory of conclusions to distort the judgment. To the writer this seems reasonable and sound. The effort being only to ascertain truth, probably a stranger to the inquiry would be of the same opinion. An illustration of the method,—(induction, as compared with deduction),—and its application to our present inquiry, may help to clear away immaterial issues, and guide us more directly to a just result.

We have the assurance of Dr. J. Arthur Thomson that continuity is an essential feature of evolution, and this suggests the simplest and most convincing way to follow its course. Descent is normally downward, as is the current of a stream. In that direction we may easily and naturally follow its course; observe and clarify its changes and departures, if such there be; ascertain and verify the succession of facts; compare them, one by one, as they arise, with the known laws of nature, and follow them as they proceed through the historical periods; much as a railroad through a

mountainous country follows the river beds and mountain passes, using the paths already worn. The stream flows downward, and not upward. If we begin without a theory, merely searching for information, we are free to follow where it flows; we can note its most casual feeders and tributaries, and give them due weight in determining its sources and its ultimate direction and outcome. This is not the only case in which a theory has been framed before the facts were known, but it is always perilous, as well as erroneous. The wise Dr. C. Stuart Gager suggests a suitable frame of mind for a scientist whose slogan is "verified knowledge." He says: "If the hypothesis is found untenable it is abandoned."

The writer doubts whether an important question has ever before become so entangled in verbiage and undigested theory; and this, he thinks, results most largely from attempting to trace backwards the course of descent, whose normal flow is forward. This leads to speculation and argument to account for every difficulty encountered, and to fit it into its place in a presupposition. Even a casual reading of a scientific defense of the evolution theory shows that the known laws of nature are not taken at their face. Exceptions and evasions are introduced to meet difficulties without abandoning the theory, and these have even come to be regarded, though not predictable, as features of the law. It is true that inductive and deductive reasoning ought abstractly, where all the facts are known, to lead to the same result, and possibly er-

rors occurring by one method could be corrected by the other; but since the present theory is professedly only an interpretation of the facts these are primary.

The form of inquiry we suggest begins with the earliest stage of life, and continues on to the appearance of those definite and recognizable ancestral heads of families, types or groups which this writer has taken the liberty to designate as "tribal heads." This, from that direction, constitutes the *first* definite period. When the head of a family or order comes into view we shall have found a normal dividing line between history past and future. From that time forward to the present each tribe or family has its own traceable history, in doubt only in details, as to which information may be lacking. This is the *second* period. Between the solitary existence of the unit of all life and the time of these "tribal heads," (which is the *first* period), must have occurred the whole immense transmutation from one form of life to three quarters of a million. It has no other practicable place That it occurred at all rests on mere inference, however, which is not enough to assure us of the fact, but at this point we are assuming it.

The unhappy results of wrong-end to.

If indeed there is, within that *first* period, a history of life founded on known facts it cannot be difficult to trace it downward, as other history is traced; and this would help to clarify the theory of unit origin, if it is indeed tenable, as well as the

development of our many species from one individual, and thus to raise it above mere hypothesis. The verity of the evolution theory depends on it. Dr. William King Gregory, (Creation by Evolution, p. 272), and Dr. Julian Sorrell Huxley, (ib. p. 333) both begin such a survey, using almost identical language, (perhaps quoted from another), i.e.—"Starting from the single celled type life made its first great advance," etc., and from this point they ramble on to man, but mention no stages, and give no instances. Nevertheless this is an admission, if there were reason for doubt, that the story of life's development properly begins there. This is our present point,—i.e., that following the normal course the application of just tests to ascertain the true succession of facts will not be influenced by a theory framed before the facts are known. By the evolution theory it is asserted that each now subsisting generation, *traced backward*, will be found to modify its family characteristics, gradually assimilating with each other, and losing separate identity, until they reach the common cell of protoplasm, which had no individual characteristics at all, but only the life principle. This is awkward and superficial. Descent does not progress backward, and it is difficult if not impossible to trace life changes in that direction. Operating from the small to the great the law of heredity becomes and remains our governing rule. We can, as we must, take that law at its face,—not attempting to fit the facts to our

theory. We are not encouraged to invent departures or evasions to minimize the law. Thus, if any theory is found to be tenable, it will work out *as we descend* from protoplasm; whereas there is no law to which we can appeal if we progress backward. Indeed it is *quite impossible* to trace descent backward; for thus cases of reversed, or double reversed, or static evolution would be encountered which would completely block progress, and leave fields unexplained.

Starting at the beginning we become aware that although by the theory every advance is to be *orderly*, and never fortuitous, nor by reason of chance or favoritism, (Dr. Jordan's rule), this is impossible, for there is visible in every link in the chain of descent a departure from type, widening in spread and varying in character and frequency until our three quarters of a million widely distinct species appear in an individual form, recognizable and capable of classification, each by that time hardened in its own type, and incapable of return. Tracing *backward*, with a "working hypothesis" in hand, is perhaps not impossible in some cases, but it is bound, the writer believes, to prove, here at least, complex, full of assumptions and inferences, and the cause of many errors. But if, pursuing either course, we could forget that we have a theory to defend, and proceed to frankly examine the facts, we should find these among other difficulties.

a. For one thing, each successor in descent, by virtue of the theory, if the facts admitted of any de-

scent at all, must find his potentiality for reproduction *reduced pro rata* at each new generation, until it ends in only one possible kind of progeny; for in each instance of the birth of progeny the field to be covered, which is our present aggregate of species, is to that degree already provided for, and each line so started is on its way to individuality; thus the field, radiating and spreading like the leaves of a fan, is in each instance that much reduced; and the last in each line of progeny *must* be capable of *one characteristic type only;* this would be the "tribal head,"—a definite form, capable of classification, recognizable and individual. How can such changes be explained in harmony with law; or what original equipment or predictable rules could bring it about?

b. For another thing, the individuals comprising those lines of descent could not bring forth their progeny at equal intervals, for these differ greatly, and nature proceeds differently. Those destined to be fish would probably, as they do now, spawn frequently, and in immense numbers, while those destined to be elephants would produce progeny *singly*, and only half a dozen in a century; yet nearly three quarters of a million types must be provided for, all of different periods of emergence; what complexity; what confusion; what chaos; can this be law?

c. The development theory assumes that not only the original unit, but each descendant, must have a similar potentiality, (reduced from time to time as stated above); but the case is not so sim-

ple, for thousands of incomplete types must be adapted to *as many periods of gestation*, from a few minutes to a few months. Anything else would be, as Dr. Newman says of an analogous case, "a sport, an accident or a miracle."

d. There is no known law,—and we must assume there never was,—and it may well be there can never be,—to fit such a situation. The highly artificial theory of "variation," used in the scientific discussions, even if able to justify changes of type, could not explain this.

e. It is a part of the theory however that this heterogeneous descent will sometime reach that dividing line where ancestral heads of groups or families arise,—each fixed in type, and forever limited in potentiality to its own family. Thus only can they fit in, each to its own place, in the waiting line of "tribal ancestors," and thence proceed onward, each of its own type, now fixed, and incapable of change. But can they; and will they. When, and where, and how, and why, will the normal incidents of descent change.

The foregoing are specific difficulties; but other reasons also require us to reject a theory departing so far and so often from any law we know.

The period of the thick mists.

We are considering the earliest period. Dr. J. Arthur Thomson calls it the "thick mists of life's beginnings." As a convincing answer to the evolution theory, next in importance to conclusive evidence that descent was *not* in fact progressing as the theory assumes, is the total lack of evidence

to prove that it was. The former is lacking, because nobody knows, but the latter is beyond question. A hypothesis is only good if it works, says Dr. Newman. But this is affirmative; is it working now?

Prof. Edwin Grant Conklin, in Creation by Evolution, p. 75, says of that earliest time, as compared with the fossil period:

"The whole course of evolution through past geologic ages can be followed only by a study of fossils. The record is necessarily incomplete, for we rarely find all the stages of evolution represented in fossils."

Sir Arthur Smith Woodward, Ibid, p. 126:

"The main difficulty is the imperfection of the record made by the fossils. Generally no part of an animal but its hard skeleton is found; the softer parts have been preserved only in exceptional circumstances."

Lull, Ibid. p. 257:

"Our fossil record begins with the dawning of the Paleozoic era, some 500,000,000 years ago. * * * for when the fossil record actually begins not only is life fully manifest, but * * * thus the missing links in the early evolution of animal life constitute for millions of years the entire chain. * * * The reason the record anterior to this time is blank is because of the nature of the organisms themselves. Consequently, save for certain remarkable impressions, yet to be described, little of the actual nature of these ancestral types is known, except by inference."

Prof. William Morton Wheeler, Ibid, p. 213, says:

"The proofs of this very long historical evolutionary process are therefore indirect; they derive their value from the convergent and mutually corroborative infer-

ences drawn from studies made in widely different fields of the great science of biology."

Prof. David M. Watson, Ibid, p. 243, says:

"The actual reptilian ancestors of the birds are no longer living, but we know several animals that are closely related to these ancestors."

Prof. William King Gregory, Ibid, p. 272, says:

"The vertebrate animals originated millions of years later, and there is as yet no general agreement as to what group of invertebrates gave rise to the vertebrates."

Prof. Alfred S. Romer, in Nature of the Earth and Man, p. 304, says:

"In the discussion of plant evolution most of the evidence is drawn from comparative studies of living forms, since plant tissues do not contain mineralized portions, such as bones and shells. It is difficult therefore to trace many of the stages of their development through geological history. In the treatment of animals other than vertebrate the evolutionary story is also mainly based on evidence obtained from living creatures, since the greater part of the evolution of these forms seems to have taken place before the fossil record became at all clear."

Prof. Kellogg, in Evolution, p. 69, says:

"We have to face the plain fact that the prehistoric plants and animals had a hard time of it in their pleasant intention of presenting to future inquisitive man an easily readable picture or story of the succession and kinds of life of the geologic age."

p. 71

"An examination of a whole series of rock strata shows that the more highly organized and specialized kinds of plants and animals did not exist in the earlier epochs of the earth's history, but that the organisms of these epochs were all the simpler or lower kinds."

Lull, The Ways of Life, p. 117: (Note, Archeozoic and Proterozoic are the first two of six Geologic eras):

"We speak of the Archeozoic as the period of unicellular life, both plant and animal. This however is entirely inferred, as there is no direct evidence of their existence."

And on page 125:

"The origin of this important group (vertebrates or chordate phylum) is lost in the darkness of time, as the earliest known fossils are already advanced far beyond the initial stage. Various hypotheses have been advanced as to the ancestral home, the invertebrate stock out of which the vertebrates arose, and the moving cause for their initial evolution, none of which has a sufficient body of proof back of it to make it anything other than a mere working theory."

From these reluctant and round-about admissions it is quite plain that nobody knows, and in the nature of things nobody can ever know, what was taking place before the fossils appeared, nor even that there was such a period; and thus there is nothing but inference to support the many positive statements of the scientists on which the theory of unit origin is founded.

Although many writers describe conditions during that period with as much assurance as if they were observers, every such tale, compared with assured fact, is as unreal and imaginary as Alice in Wonderland. We are dealing here especially with the period of invertebrates, which preceded the vertebrates, but in popular contemplation they are intermingled. Conan Doyle's Story of a Lost World is an example. Not only are the facts un-

proved and unknown, but the inferences which form the sole basis of the assertions are drawn wholly from *creatures living now*. This is on the supposition that those then living were of the same character, and, the pattern being the same, the picture would be the same. It is founded on the Comparative Anatomy and Zoology not of that day but of the *present*. But this is mere surmise. Dr. Newman, Nature of the World and of Man, p. 195, explains the method thus:

"If a biologist wishes to discover the ancestry of a particular species he studies numerous other animals more or less like the one concerned, in the hope of finding some traces of character among them that suggest the ancestral condition of these species. * * If one commencing as the most primitive features collected from all the members of the group he then has something that he can use as a working hypothesis,—a hypothetical synthetic ancestor."

And note on this point the language of Prof. MacBride, quoted above, to the effect that Comparative Anatomy and Zoology, based on present conditions, are an unreliable guide in that inquiry, because we have no right to assume that the present forms of life remain the same. Dr. MacBride is himself a distinguished scientist, with no end of degrees,—he is, or recently was, Professor of Zoology in the Imperial College of Science and Technology, London, and his opinion on this point should be sound authority; and it should be borne in mind that one fundamental contention of evolution is that the forms of life were *not* then the same, but were in the process of growth, and nothing was mature.

An illustration of the futility of such inferences is found in the experience of Mr. Huxley. To judge of the human interior he dissected a puppy, saying that the human embryo was not available; but he was candid enough to explain that a part of the puppy's embryonic experience was *not* like that of a human being. (To this we refer on page 86.) The theory is that "things which are equal to the same thing are equal to each other," but its probative effect is lost when the fact appears that the *initial resemblance* is an assumption. It would seem clear also that if the *forms* of creatures living now are to be carried back to that time for comparison, the *laws* we are acquainted with, and which prevail now, must also be carried back; and if that be done the supposed departures from type were no more possible then than now.

This seems a suitable place to consider an error of *fact*, which has misled many writers in their attitude toward those who accept the theory of special creation. It is significant because it begins with a wrong assumption, and so its results cannot be dependable.

CHAPTER V

Two "Rival Theories" of Life; Resemblances and Differences

In this it will be shown that evolution and special creation have certain fields in common, although it is not in general so supposed; also where these similarities end, and why.

CHAPTER V

Two "Rival Theories" of Life; Resemblances and Differences

Practically every writer from the scientific standpoint recognizes but two "rival" theories of origin, and nearly all make more or less serious comparisons between these. In Part I, Chapter IV, we have *defined* these to a considerable extent. Here it is our purpose chiefly to *compare* them. The difference between them is essentially this, i.e. —the first appearance of living beings by groups, species or families, which is a very significant stage,—here designated as the period of the "tribal heads," is said on the one hand to be pursuant to divine *fiat*, with no precedent history; and on the other to have proceeded from a theoretical origin in a single unit. On the latter theory there was a very long and complex history of development between. We may simplify our comparison by what is known as "striking out." The process is analogous to ascertaining the least common denominator. Since both begin with Life, for which there is no explanation, the comparison may be simplified by omitting the first cause in both. What happened after the tribal ancestor first appeared is not in conflict, for that also is, as we shall see, common to both. Thus, as we have elsewhere seen, the verity of the evolution theory must stand or fall by what occurred *before* the period of the

tribal ancestors, i.e., before the fossil period, when arose the first definable and recognizable examples of the several groups or families. Here concentrates the most serious part of our inquiry, in a position where, fortunately, the spotlight can be turned on it.

We may find a proper and just basis for this most significant inquiry by laying the two theories of origin and progression side by side, for comparison, and observing the features in which they differ. Since the Genesis theory of origin begins at the point where, under the development theory, we find the "tribal ancestors," which is also a fixed point under evolution, the difference between them must be located earlier.

The essence of each theory, and how to find it.

As stated in a previous chapter, the book of Genesis is the place to acquire an understanding of the special creation theory. Excluding man, the origin of living things is found related in the first two chapters. From that on the book is a story of man. Other living things are assumed, and casually mentioned, but we have no need here to consider or construe—still less to defend—the rest of the narrative. This then furnishes one element of the comparison in authentic form. To find the other we must cover a wider area. It is easiest apprehended by recurring to the three great fields already mentioned. Beginning now, and tracing backward to the Cro-Magnon, we are on proven ground. That period, being the same in both the-

ories, may be dropped out of the comparison. From that point back to the first appearance of fossils, which is a *second*, we have a period of unknown extent, as to which the only factual evidence is the fossils, and their record is admittedly incomplete. This period is much the same under both theories, and this also may be ignored. At that point, and thence backward, is the *third* field, which is peculiar to the evolution theory. It has no counterpart under special creation, and there, as we have seen, the two are in total disagreement.

Both theories assert that at a definable stage there arose common ancestors for each of the numerous families, kingdoms, orders, or species of living things, recognizable and capable of classification. Those "tribal heads" were characteristic under both theories, and under both they were endowed with, or had in course of descent attained to, certain potentialities,—not vague or general, but specific and defined. They were the progenitors of lines of descendants *similar to themselves*, extending in consecutive order from that point to the present. For an example consider the little horse of Fayum, (explained more fully in another chapter). He is said by the scientist to be the ancestral head of the horses. When we inquire how that condition came about, our first considerable difference of opinion arises, but this is on the weight of evidence, and no principle is involved. The advocates of both theories might agree on the fact of the little horse, and even on its subsequent history, though the details may be differently

stated, and perhaps differently interpreted. The little horse was, we are assuming, the first recognizable individual of its kind. By both theories its line, whether new or old, originated in a germ cell; and that line has continued to the present time, *wholly within its original order*, conforming normally to the known law of heredity. Genesis, as understood by this writer, avers that *by divine fiat* the world, including the horse family, first acquired life;—typical, family, orderly, potential for continued life *of the same sort*, in its own line of descent, without a break, and determined in advance;—"after its kind," says Genesis; and, as will be shown below, the horse has always been and still is a horse. The theory of evolution views the first little fossil horse however not as a new being, originating then, though in a germ cell by both theories, but as itself a descendant of a line of ancestors, by numerous prior generations, each an advance on the others, originating a long time earlier, in a single unit of origin. Within that precedent field the development theory insists that we must suppose forms of life to be evolving in diverging lines, age after age, each line taking on, somehow, defined family characteristics, until at last the little horse arises, fixed in type and character, and becomes the head of a line of horses. If that tribal head of the horses had *no* precedent ancestry, but appeared then for the first time in a germ cell, emerging into the horse form as horses emerge now; or if for the argument it be so assumed, his history from that stage to the present

under both theories need not be different. Have we not here come upon the fundamental issue? Is not that issue the question of fact whether the time consumed in reaching that distinctive stage was long or short; whether there were many precedent stages or but one; whether life touched its primary substance with the faculty of automatic continuance when first by impulse from God it was started as an embryo, on its way to become a horse; or whether far back in those ages when, from an origin in a speck of protoplasm, it began a long course to the same end. If the creator of life, in the abstract, was divine, and acted in either case, is not the chief query only the question of fact whether that power worked rapidly,—as it does now, and in one stage only,—or slowly, in many? If the same power, divine or not, could have produced both results, but the theories differ whether it did or not, is there anything to argue except the query which of the two occurred; and what is there of significance to be settled by the result? There is no genuine history available pertaining to that earliest period. Therefore no such assurance can be found. Probabilities may be weighed, but no result can be trusted. Experience and observation *since* are our only criterion. We do not know that present *facts* are like those, but we all agree that the *laws* have not changed, and this furnishes a reliable test. There is no law *now* under which a single being, neutral and sexless, could be the ancestor of our highly diversified life. Therefore we can safely assert that there

was none *then*. If so there was no unit of origin, and no history or period of life before the "tribal ancestors," and no experience of changing types. Finding no reason for so believing we must reject that theory *in toto;* for nothing *was* which *could not* be.

As mere research, or something tough on which to whet our teeth, the query which of these in fact occurred is full of interest; but the plain fact that on either alternative there was a miracle at the outset, leaves them equally without scientific proof; and ignoring predilections, and regarding only the proofs, we are left to decide which conforms best to what we know of fact and law. Returning to the form of the question, we note again that the special creation theory is not apprehended in this form. Prof. Newman, of Chicago University, in Gist of Evolution, p. 17, puts it in this language:

> "The only rival view of the universe is that God made every thing in a brief period of time, and then left it in a finished state, to go on unchanged forever."

That error has been already explained in Chapter IV, Part I, and our summary there is enough for the present point. If we are right it is not necessary to compare the theories from end to end, since the essential difference lies in smaller compass; and yet, since the view that in large part they are parallel may be controverted, it is safest to consider more fully the other points of difference. The main object of our inquiry is not to choose between them but to see whether the evolution

theory is *sound*. It stands firmly on its conformity to established natural laws, which are not framed to prove anything in particular, but are the paths, or we may say ruts, in which life moves. Sir Charles Scott Sherrington, in his Introduction to "Creation by Evolution," puts this clearly. He says:

"The creation of man is shown to have been a result, in some respects the most striking result, of certain laws that hold throughout the animal and plant worlds."

Since those laws are known to both, if there is any lack of harmony between them the *facts* must be misunderstood or misinterpreted.

The truth therefore must be found by comparing the law, which sets the pattern, with the evidence, which ought to fit it. Nobody makes the facts, but sometimes they are, when formulated, over or under the truth. Therefore they must be weighed. Statements which cannot be true must be laid aside—perhaps on the shelf for later reference—perhaps on the scrap heap.

The essence of the inquiry.

Logically the question which theory is the more credible emerges in a single query, i.e., was there ever a unit from which, as a common ancestor, all present living things emerged? It may be put in a different form, i.e.—Does the chain of life, in any species, trace back further than to an ancestor of its own type, from which, by the law of heredity, it could have descended? In testing this the evidence is not in serious controversy from the

"tribal" point to the present, and proof is only needed from that point backward. If such evidence is not found we have nothing but the hypothesis; and this means that the theory of evolution must be rejected for want of proof.

The application of the foregoing comparison.

Going directly to the controlling point, is not the chief question one of *speed?* Life, beginning in a cell, whether recently or ages earlier, is ultimately, by our illustration, to reach the period of the little fossil horse, which here stands as the representative of the "tribal ancestor." It may have passed through a thousand stages, of a million years each, or it may have begun when the first horse was born. To the believer in divine intervention this question is of immense importance, but to the mere scientist it need have none at all except the question of verity.

Prof. Jennings, in Creation by Evolution, p. 25, discussing the difficulty of observing the slow processes of development, gives an interesting illustration in which film pictures of events occurring in slow succession, like the growth of a tree, may be speeded up, so that the details of growth may be observed. Applying this to the procession of events between the earliest life and the little horse, that whole period may be conceived of as passing before the vision in no greater time than the horse would take now in his progress from a germ cell to the infant animal. In the comparison that period, short or long, represents the embryo.

Does not the gap between these theories reduce itself to the query whether,—the beginning being the same, and the end the same,—the intermediate changes could or did speed up to the time normally occupied by the embryonic stages, until the eye or the mind can catch no difference. Thus expedited the elements which change normally so slowly become vivid, as a departure from type would appear if compressed into the embryonic period; and we can see how radical and how impossible it is for a man to descend from a shrew, but how possible it is for him, in some order or succession, to grow from a cell. But returning to our comparison, we note that under both theories some mysterious power. at some stage, touches the processes with life, which can and often does operate swiftly; the proponent of one theory avers that it did, and the other disagrees. One has no previous history to recapitulate. The other a long story of adventure, all incapable of proof, and of only casual interest if proved. Which is the more probable, and which is best corroborated? Is not this indeed the main issue? If such it be, it would seem that abstractly the difference may not be highly significant, for the result is the same; but the proponents of special creation regard the origin of living things as only one of the great functions of God, and their theory requires no other unit of origin. From that point of view the issue, as a whole, is far beyond the single question. On the present point the proponents of special creation have this advantage; i.e. if the theory of unit origin *cannot*

be true then it *is not*, and that ends it. On the other hand it cannot be *proved* that special creation is impossible, or that it did *not* occur. The utmost one can do is to refuse to accept it, though he must be aware that many, equally competent, have done so. One has a reason for his faith; the other none, except the assertion of his mental independence.

The field for controversy has thus been reduced to a definite period of time, in one case long, in the other short, terminating with the same event in both; and the dispute is limited to the reading of the embryo, one of which has much detail, the other none. By one theory the previous period is a maze of confusion in which, from a single cell, not one individual but three quarters of a million diverse beings, all immature, and as yet of no particular species or family, are progressing to maturity; by the other there was no such precedent period, but the history of life began with one individual, or one pair, of each characteristic species, "after its kind." The probable truth, there being no evidence, and the question requiring to be tested by normal experience and settled laws, ought not to be difficult. If this is but a dream it should be blamed on Prof. Jennings, who suggested this method. If there was such a precedent period "*variation*" could not reduce its complexity unless it was radical enough to bring about a change of function,—so that, for example, from a pair of horses might, by small or large degrees, descend a cow or an elephant. If speeded up, as here pro-

posed, the process might be watched, and if evolution is true the extraordinary spectacle could be observed of a cell of one kind producing an animal of another. It seems plain to the writer that this would require a *new cause;* it would *pro tanto* be a *new creation*, and therefore, (by Dr. Newman's illustration, quoted elsewhere), a *miracle*. The conclusion therefore is reduced to a choice between miracles.

It seems clear that if each of our present families or orders began with an ancestor *of the same order*, the present condition of living things could be explained without evading or perverting the law of heredity. The changes *within species* which have occurred since that time, and which are visibly occurring now, could be reasonably harmonized by a consistent doctrine of variation. That present families and orders did have in their history a stage in which they were represented by the first of their kind is not denied by either theory. It is thus that the little horse of Fayum is identified as the head of his own race. The difficulty scientists experience, and must ever experience, in proving to the world that heredity exists but *does not control*, relates to that *precedent* field, (our third), within which it is necessary, in order to fit the theory, to prove a persistent habit of living things to disregard their own native tendency, and to wander, without control, and with no power to predict, over the whole field. Stated in other words the contention is that, since law is merely a mode of operating, and not a force, so that law and normal

course of descent mean the same thing, the law of that period was different, or at least *admitted* of different results. This leads to so many other embarrassments that it is not even asserted. On the contrary the thing asserted is essentially that though the law *was the same*, the practice *was not*.

Mr. Darwin had a good deal of trouble explaining why, under his supposed system of changes by modification in course of descent, no transitional remains were found. This he answered only by the proposition that they did not happen to be preserved. He covered many pages with reasons why they have not been preserved. "Hence," he says, "we ought not to expect at the present time to meet with numerous transitional varieties in each region, though they must have existed there." But we have shown that any reasons for the failure of nature to preserve them would apply as well to *mature* forms, of which, in the aggregate, many have been preserved.

It should be noted that Mr. Darwin's discussion is not in support of any theory that "variation" means change of type or character, but in support of the very different doctrine of natural selection, which is not now approved. The title of his book is, "The Origin of Species *by means of natural selection*, or the preservation of favored races in the struggle for life."

He says, with respect to examples of transition:

"Out of the many striking cases which I have collected I can give only one or two instances of transitional habits and structures in allied species, * * And it seems to me

that nothing less than a long list of such cases is sufficient to lessen the difficulty in any particular case like the bat."

He mentions none which could indicate transition, *except in habits*, which is not on the present point.

Assuming that the candid scientists, of whom there are many, are earnestly seeking ultimate truth, and are willing to consider with an open mind suggestions as to the best method of finding it, we proceed to mention certain other tests of soundness,—not new,—which have proved their value in other fields.

CHAPTER VI

Reasonable Tests of Verity

In this chapter the laws of nature and their bearing will be further considered, illustrated and applied. It is also intended to show how dependent the theory of evolution is on evasions and departures from those laws.

CHAPTER VI

Reasonable Tests of Verity

Variation vs. Evasion.

Among the elementary features of the law of heredity, gathered up from the previous discussion, and in a few instances rephrased for clarity, are these:

1. *Progression*, standing alone, means the birth of new generations in succession, as prior ones reach their full period of life and disappear. Unless interrupted or diverted by extraneous forces, or by the operation of extraneous laws, each generation should possess, though not always in equal measure, the characteristics of its predecessor. Normally progression is in general uniform and continuous. Variation, properly limited and defined, is not inconsistent with law. Except in extraordinary cases, which we occasionally see and cannot account for, departures from type cannot occur. Exceptional instances, such as the six toed man of Mr. Huxley; the Siamese twins, double headed calves, etc., have been known, but are always regarded as abnormal—what Dr. Newman calls "sports, accidents or miracles."

Yet retreat, recession, doubling back, and other irregular changes which look like mere eccentricities, are affirmed as not unusual, as we have seen, and are treated as fairly to be expected

in evolution. Dr. Lull, in Ways of Life, p. 46, gives some extraordinary examples. As all these are so located in time as to be admittedly beyond the ken of anybody,—even of Dr. Lull,—they are inferential and imaginary. Yet they are asserted as a part of the basis for the evolution theory. If such final forms in fact existed, or exist now, they can be explained by the theory of special creation, for they may have begun and also ceased, but they fall wholly outside any true theory of evolution.

2. *Uniformity* is another important feature. This the course of life and of descent exhibits beyond dispute. It is not enough to find an *average* of characteristics among a number of instances. In a given family of children, the progeny of the same parents, one or more cannot be black or red or yellow, and the others white. Interruptions or exceptions must be consistent with the general rule by which descendants of an ancestor are of the same race. You cannot take a *black* family of children and a *white* one, and average them to produce a rule of humanity of either race. The law of heredity requires a like type, constant in the same line of descent. In other words the characteristics of each type must be *hereditary*, and must be traceable to the *same individual*, or in an *individual line*.

3. *Continuity* is another admitted feature, but this has already been made the subject of a chapter.

4. *Variation*, in a given field or family, results chiefly from differences in the parents. Prof. Herbert Spencer Jennings in an article entitled

"Can we see Evolution Occurring?" in Creation by Evolution, p. 29, says:

"The two parents always differ in their hereditary constitution, so that offspring are usually a combination of two hereditarily diverse stocks so that every one of the offspring of a pair of parents differs in its hereditary constitution from every other one."

This is also a part of Galton's chief Law of Heredity, (see Prof. Kellogg, Evolution, p. 122), where it is stated thus:

"An individual derives on the average one-half of his inheritance from his two parents, one-fourth coming from each; one-fourth of his inheritance from his four grandparents; one-eighth from his eight grandparents; and so on, by diminishing fractions until the sum of this infinite series reaches 1, or the total inheritance of the individual."

Thus "variation," as we observe it in current life, is admittedly not a departure from type, but has its own adequate causes, and its own limitations, all within the species or group.

5. But "variation"—erroneously so called,—meaning or describing departures in *type*, is of the essence of the theory of evolution. If descent were governed by heredity only, all nature would, scientists say, be unchanged in its character, and as placid and static as a mill pond. Dr. Lull says, Ways of Life, p. 87:

"Without variation no change could occur, but all organisms would be exactly similar."

By "variation," as used there, the author means, and whenever used as an element of the evolution theory it has the same meaning, departure from type,—a change from one species to another, or

from one family or order to another; for Prof. Lull's proposition is that the present forms of living nature *did in fact* emerge from a being *not of the same character*. With it the theory is at least intelligible, but without it shifting of type is admittedly impossible, and its program of the course of nature would be so erroneous as not even to justify argument. It is therefore essential to the theory.

6. This writer believes that no law can be framed to fit such a condition. It does not admit of a law, as we demonstrate elsewhere. Prof. Jennings thinks this criticism can be met by carefully studying every instance; but this would be an opinion only, on which even scientists could disagree; and it could only be determined afterwards, and would not be predictable, and therefore not a law.

Application of the law governing descent.

Some reasons of the *hiatus* which this writer thinks he sees between the law and the evolution theory have been considered in Chapter VI, on The Common Ancestor, in Part I. By that theory the same being was deemed progenitor of man and apes. We need not dwell further on the tremendous abyss which lies between them, as most sharply put by Mr. Huxley.

Man is the most marked instance, but a very wide gap projects in every line of descent. The doctrine of variation or mutation, or both, as the terms are used by the scientist, was apparently

invented to meet this difficulty. If heredity does admit of changes in type then no specific outcome by descent can ever be anticipated, for one finality is as probable as another; and of course no tracing either backward or forward is possible. If it *does not* so admit, then the descent of dissimilar beings from ancestors of a different type is impossible. This cannot well be denied. It is therefore argued that "variation" *will* admit of it. If so then the particular case—and every similar case—even a whole world experience—is taken out from under the law. It would fit in one case and fail in another. If one law is so unreliable so may others be. The sun may rise tomorrow morning at four or six or eight, or it may not rise at all. The fatal effect of such "variation" on law, as a guide or dependence, is made no less certain by giving those departures a soft name. It is not the function of science to prove a theory, but to discover the facts.

To avoid this effect an argument, evidently trivial but stated seriously, is made, to the effect that because the time periods assumed by the theory are very long, and life short, departures from type may escape notice, and thus wiggle by. By this explanation a change from a plant to an animal, or from a reptile to a bird, or from a shrew to a man may be impossible, under the law of heredity, if it moves fast, but practicable if it is slow. Prof. Jennings, in "Can we see Evolution Occurring?" puts the suggestion in these terms, (Creation by Evolution, p. 26):

"In a human lifetime, or in many human lifetimes we could not expect these changes to be great. * * The doctrine of evolution would therefore not lead us to see widely diverse creatures produced."

This seems to the present writer not only unconvincing but unintelligible. The difference is in character and principle. As a grocer once said of an analogous question—"There is no such thing as a moderately bad egg."

Another phase of the law; the uniformity of germ cells.

Germ cells, which are fundamental by the scientific doctrine, must have had from the beginning a fixed character and potentiality not capable of essential change, even slowly. It would require a new cause, and this would be a miracle; and yet evolution assumes and must assume that it *can* change, *without a new cause*. Verbally the distinction is between "inheritable" and "non-inheritable" changes. But here "inheritable" means *permanent*, and it asserts a change for which there is no law and no instance, except imaginary, otherwise known as inferential. But if it is supposed that such permanent changes could occur, yet there is no law of nature to determine *how*, or *when*, or *to what extent* or *in what direction* it would move. Descent is governed, we are taught, by the germ cells, which are inherited, and are specific as well as permanent, and so rapidity or slowness would make no difference. The movement of development is always slow, but any such change

would be in *character*, and *pro tanto* a new creation. The rule of science is definite and invariable that type or character cannot change without a change in germ plasm; and that this cannot occur without a cause. On this we have cited strong supporting authorities elsewhere, but because of its importance add others here.

Prof. Conklin says, (Evolution of Man, p. 156):

"The possibilities of evolution are always limited *by the organization of the germ plasm.*"

Prof. Newman, Gist of Evolution, pp. 113, 114:

"Each germ cell may be conceived of as a lineal descendant from a zigote, (or fertilized cell), through a continuous series of germ cells that have never been specialized parts of a parent body, but have merely been housed by the body tissues. It is a mistake to suppose that the parent body makes the germ cells, for germ cells are not descendants of body cells, but come only from germ cells. *Thus there is an unbroken continuity of germ cells from generation to generation.*"

And on page 108 he says:

"One thing about germ cells is obvious; that they must carry the potentialities of the adult individual within their microscopic bodies."

Prof. George Howard Parker, of Harvard says, Evolution of Man, p. 154:

"In order to be of any evolutionary value a variation must be inherited. Thousands of variations occur in organisms which are not inherited. * * Inherited variations are caused by *changes of the germ plasm.*"

Yet Dr. Lull, of Yale, Ways of Life, p. 79, says:

"They, (inherited variations), are nevertheless, as it were, foreordained, and will come to pass in the fullness of time, if the organism survives, unless their normal appearance is inhibited by some acquired characteristic."

This amounts to saying that changes are expected to occur, though that author cannot tell how or why, and the law does not provide for them.

Prof. John Walter Gregory, Creation by Evolution, p. 112, says:

"The fact that domesticated animals can be varied by breeding does not necessarily show that under natural conditions the progeny of one kind of elephant can become another kind."

It is therefore impossible for any present being to trace back his ancestry to a tribal or group head if it involves or leads to or through an individual *not of his own order*, so that, for example, one starting from the present as a man may emerge in the tribal age as a shrew. To sustain this a new law would be required for every instance; and it would be impossible, this writer thinks, to frame such a law, or to predict how it would operate.

A series of obstacles.

If there were no other reason it would seem plain that a theory requiring such unpredictable shifts and changes is not tenable. But there are other difficulties also which seem to this writer too serious to be ignored. These we paragraph for more convenient apprehension.

First: Recurring to a proposition previously stated, we note that nothing can properly be deemed a law which will only act here and there, or now and then. Taking the facts furnished by leading scientists, we find affirmatively that in a large part of the field to which, if tenable, the theory of evolution must apply, nothing has conformed to it within three million years, and within another large precedent period of time and field of beings there is no affirmative evidence, for nothing is known. These forms of life have never developed at all; i. e.—the plant world; the world of reptiles; the invertebrate world; the fish; the amphibians; the ants; the bats; the pterodactyls. (See Dr. Osborn, Origin and Evolution of Life, p. 231):

"During this period of three millions years (through Tertiary)—the entire plant world, the invertebrate world, the fish, the amphibian and the reptilian worlds have all remained as relatively balanced, static, unchanged or persistent types."

Dr. William Morton Wheeler of Harvard, Creation by Evolution, p. 215, says:

"We are therefore unable to detect any significant evolution of the ants as a whole during the millions of years of Tertiary time."

And so it is in time, as well as in type; for in the entire world of life during those immense stretches of time said to have elapsed from the beginning down to the time of the fossils no such typical changes are known to have occurred. If it is not known affirmatively that the world during

that time followed the law of heredity and nothing else, yet the scholars are agreed that we have no history from which to judge that it shifted at will, or without will; or with or without a plan.

Dr. Lull, The Ways of Life, p. 117, says:

"We speak of the archaeozoic,—(the earliest geologic age), as the period of unicellular life, both plant and animal. This however is *entirely inferred, as there is no direct evidence whatever of their existence.*"

Prof. William Morton Wheeler, p. 213, says:

"The proofs of this very long historical evolutionary process are therefore indirect; they derive their value from the convergent and mutually corroborative inferences drawn from studies made in widely different fields of the great science of biology."

Prof. Edwin Grant Conklin of Princeton, (Creation by Evolution, p. 75) says:

"The whole course of evolution through past geologic ages can be followed only by a study of fossils. The record is necessarily incomplete, for we rarely find all the stages of evolution represented in fossils."

Dr. Lull, Creation by Evolution, p. 257, says:

"Our fossil record begins with the Paleozoic era, (the third of the six great Geologic ages), some 500,000,000 years ago."

"Save for certain remarkable impressions, yet to be described, little of the actual nature of these ancestral types (Invertebrates) is known, except by inference, until * * * * mid-cambrian time."

Second: A marked inconsistency, compared with any natural law, or predictable method of change, is the frequent instance of *termination* of progress, —sometimes at stages admittedly imperfect. Examples of this are the apes, which are no further

advanced than when they first appeared, and yet have reached their last stage. Another is the insects, comprising three-fifths of our aggregate. These Prof. Kellogg says have been "unbelievably abundant through several geologic ages." And so Prof. Lull, (Ways of Life, p. 205) says of the horse that "it is one of the many instances of an evolutionary *cul-de-sac*." Another series of irregularities which no man could, it is supposed, devise a law to fit, are the "marine reptiles and mammals" described by Dr. Lull in Ways of Life, p. 46, whose structure "implies a terrestrial ancestry, and therefore a secondary adaptation to aquatic life." To the same effect is an argument given to support the general course of evolution from aquatic reptile to land existence as described by Prof. Gregory in Creation by Evolution, pp. 279, etc. The amphibians it is said include other instances, as where certain frogs continued aquatic while others acquired "landward habits," but continued and continue now to raise their young in the water; (Origin and Evolution of Life, 177-178). And in the same article it is stated that eleven out of the eighteen orders of reptiles, having first progressed from aquatic to a terrestrial habitat, reversed, and went back.

As an illustration of the ineptitude of the development theory, as it is taught, with its irregular changes, forward and backward, as it well might work itself out visibly, let us take a bed of roses. The single cell with which they are said by evolution to have begun had at first no such character.

The special creation theory avers that it had that *and nothing else*, but both admit an original cell as the starting point. Under evolution it is said that it had such a "potentiality," together with many other and diverse potentialities; that it had passed through, or may have passed through, many other stages, beginning with the common ancestor. But we find nothing to suggest this. The progression of the roses through all history, so far as known, has been upward, by degrees, and in their own line only. They have indicated no "potentiality" for a man or a fish, or a bird, or an animal. Conceivably some major force might have compelled them in another direction, but unless their typical character (known to evolution as germ-plasm) was changed this must have been temporary. If, from time to time, without such compulsion, they might reverse their ordinary process, and merge into some other thing,—plant, animal, bird or reptile,—that would be abnormal, and could only be described, (as Prof. Newman has described it), as "a freak, or a sport, or a miracle." Roses emerge first as buds. They open slowly but consistently until the whole is complete, with its appropriate form, color and perfume; and if we know what kind of a rose we planted we know what to expect, in all its phases. If we should find in such a garden roses growing upside down, or inside out, or of a different type, or beginning complete and retrograding to a bud, and then disappearing in the stem, nothing could convince even the most credulous of us

that this was pursuant to law. We should have to regard either the rose's normal growth or its abnormal as an accident, incapable of prediction or assurance. The poet Keats had a vision somewhat like this when he said, in The Eve of St. Agnes: "As though a rose should shut, and be a bud again."

This illustration may be multiplied by three quarters of a million,—one for each species; for if one be outside the field of development so also are, or may be, the rest.

We can admire the candor of the scientists who show us so many detailed instances of *reversed* evolution—which means a return to or toward the simple conditions from which they had progressed. Yet we cannot but wonder at the mental attitude which can see in such shifts or reversals evidences of evolution, which its proponents aver is "orderly advance." If we were at liberty to express an opinion not derived from scientific sources we would be inclined to controvert these statements altogether, as being not only unproved but also lawless and impossible. To apply a test now grown familiar, and taught by the scientists themselves, we would suggest that such a reversal, if permanent, implies such erratic and extreme changes—not of form only—but of type, as could only be possible if there were a *new cause*. "Potentialities" must have shifted; "germ plasm" must have changed its character; the law of heredity must have "slipped a cog," and learned to operate in several directions. If these learned gentle-

men should state these things as of their own knowledge we would feel bound to accept them; and yet, like Galileo, we might be compelled to make a mental reservation. If it could be so, however, we cannot refrain from speculating about what would have become of our own race if such a misfortune had overtaken the Cro-Magnons.

It is not denied by the scientists,—abstractly,—that progression, as well as continuity and uniformity, are features of the evolution theory; but here this writer thinks he finds another instance of departure from the meaning of the term, evidently devised to fit in with the presuppositions of a theory framed in advance. The proper application of that element, and the logical results, are to be considered in our next chapter.

CHAPTER VII

A Rule, But No Reign

In this chapter it will be shown, by proven instances, that as far back as knowledge goes there has been no history of shifting types; and even if "mutations" were permissible under law, the practice did not conform.

CHAPTER VII

A Rule, But No Reign

If facts are found, a theory to the contrary is of no value. While all the facts used in this discussion are furnished by the proponents of the evolution theory, yet it would scarcely be expected that adverse facts, if any there were, would be baldly stated, by one assured of that theory, unaccompanied by his own construction or limitation, and it need not surprise us here to be compelled to tone down some coloring, or eliminate some error of interpretation. The point to which we now address ourselves is this: The sole function of a theory is to explain discovered facts, and to elucidate what they truly teach. If therefore *ascertained facts* do not support the theory under examination it cannot be accepted. The following instances are furnished us by the proponents of evolution for the purpose of proving the theory, but certainly many of them seem to conflict with it.

One instance is the plants.

We are struck with the fact that the hypothesis that the plants evolved from the same unit as animals and man must begin with a miracle. At the start these were essentially different. Their fundamental cells were not alike in structure. Life

then either began in two distinct characters, or one of these was born of the other, which, considering their distinct character, was a miracle, or a new cause, which is equivalent. Any one may guess, if he will, that either was earlier, and evolved the other, but a guess to the contrary would have equal standing; and neither would furnish a stable foundation for a theory which only exists to explain known facts. Not only so, but if the speck of protoplasm, having one character, could begin its long course by creating another, of different quality and structure, it might also have at once struck out the future form of its own descendants, and avoided the millions of years of struggle and change which were to follow.

The fundamental notion of unity is largely drawn from similarity of structure. This is the test applied by nearly every scientist who undertakes to explain the origin of things. We have quoted elsewhere that rule as stated by Dr. Newman:

> "Generally speaking, closeness of structural resemblance must be essentially parallel with closeness of kinship. * * If we cannot rely on this principle we can make no sure progress toward the proof of evolution."

The converse must be equally a part of the evolution theory, i. e.—living things which radically differ *cannot* belong to the same family. Such then are plants and animals. It is definitely shown that these are *structurally unlike* by Prof. Vernon Kellogg, who, while adhering to the evolution theory in respect to plants, is quite frank

about the physical facts, and they tell the tale. In Evolution, p. 167, he says:

"Plants are different from animals in structure and physiology. * * But (p. 168) most plants do differ, markedly from most animals, both physiologically and in structure. * * Plant cells are usually well set off from each other by walls; animal cells are not."

And on p. 171:

"Although recognizing the plants as a group inferior in specialization and general evolutionary rank to the animals, we must not think of the plants and animals as constituting a linear evolutionary series, the lower animals rising from the higher plants. The plants and animals constitute two separate, or better, divergent lines of evolution."

Applying the scientific criterion therefore, it is impossible that plants and animals could have arisen from the same unit. The most significant test of kinship is wanting. This difference is assumed by those who write on the subject. The plants are omitted in the supposed embryonic review known as recapitulation. No one, ever so confident of the merits of that argument, suggests that plants are indicated in the embryo, or that man in his course of descent ever passed through that kingdom.

Our exclusion of the plants is confirmed also by Dr. Osborn's statement, (cited elsewhere), that the plant world has not developed for millions of years. Prof. Merle Coulter, of the University of Chicago, in Nature of the World and of Man, discussing the evolution of plants, and the "missing links" in their history, says:

"Such gaps are often filled in by vigorous efforts of the imagination; botanists construct, as best they can, an imaginary picture of the missing links, so as to complete the sequence of steps in the evolution of the plant kingdoms. Obviously such a practice is mainly guesswork."

If there were *two* units of origin or more the theory of the unity of all nature is erroneous; and one instance is enough to prove it.

The plant kingdom cannot be traced to the supposed unit of origin otherwise than by what Prof. Coulter calls a "vigorous effort of the imagination"; and this would be not only a supposition in conflict with the pertinent laws of nature, but also supported by nothing in the history of the plants. That kingdom is distinct in many respects. Though living, plants are not conscious. They are fixed in the soil, and cannot seek their food, or attack their enemies. They grow and propagate in their own fashion, different from conscious beings, and in immense numbers. There are, says Prof. Coulter, 150,000 species of seed plants alone, (Nature of World and of Man, p. 235).

If there can be two units of origin there may be one for each family or kingdom without departing farther from the theory of a single ancestor. This harmonizes with Genesis, but not with evolution.

Another instance is the Pterodactyl:

The story of certain birds is inconsistent with the requirements of evolution.

The Pterodactyl and the Bat, much alike in other respects, are alike in this,—that they were mature when they first appeared, and had no

known predecessor. So far as known they did not emerge from anything different. The Pterodactyl throughout its history appeared in varied dimensions, from the size of a sparrow to the largest known bird, having a wing spread of twenty-eight feet, *all existing at the same time*, but quite distinct; i. e. both the smaller and larger ones were mature, and neither was in course of growth. Dr. Lull, (The Ways of Life, p. 165) says:

"The Pterodactyls make their appearance most abruptly in rocks of lowermost Jurassic time, and were already completely adapted for flight. We have no knowledge, therefore, of their early adaptation before flight was attained, nor of their lineage, other than by structural affinities."

"The principal Pterodactyl characteristics are: size, in range from that of a sparrow to the mightiest of flying forms, with a wing expanse of twenty-six feet nine inches."

Of the Bats, Dr. Lull says, (Ibid. 218):

"The bats have attained true flight. We know, however, nothing of their evolution, as the earliest recorded bats which are of Eocene time are, so far as we know, already fully evolved."

The Pterodactyl continued during the age of Reptiles, "many millions of years long," (Romer p. 320), and became extinct; but no evidence exists of a change of character. The bats still survive, and show, in all this stretch of time, which includes the whole supposed history of man, no development or substantial change.

Why then should it be supposed that the pterodactyls, or the bats, which did not change in all

their immense period of life, would have changed if they had survived, or that they had changed earlier.

Another instance is the ant:

These insects are considered in detail elsewhere, and only a reference is needed here. It is made plain by expert testimony that they have never developed at all,—or at least that there is nothing known to indicate it. There is a wide gap between their first appearance and the original unit, which can be covered only by the hypothesis, and it is the judgment of experience that since they have lived so many million years without change there is no room for a presumption of earlier development; and we know they are *not* changing now.

Another instance is the bee:

Sir Arthur Everett Shipley has an extended article on the subject, purporting to describe the *evolution* of the bee, but he begins it (Creation by Evolution, p. 186) with a bee of the present type, and proceeds to describe its mode of life, but mentions nothing to suggest that it was ever anything else; and the varied bees described were *living at the same time*, and no order of descent is mentioned. To him evolution does not even seem to include unit origin. The bee then, like the ant, had no known predecessor. Yet on the theory of unit origin the bee also must have emerged from something essentially unlike itself. All the light we have indicates that it had no different ancestry.

If so it does not connect with the unit of protoplasm.

Another instance is the horse:

The detailed story of the horse will be examined in another place, where those details are peculiarly pertinent. We shall here only summarize its story so far as it illuminates our present point. We remind the reader that we deem the mere question of change in form, size, color or shape, within family lines, as not worth discussing, because to a considerable extent such changes are not denied.

Our comparison with the horse has a number of phases and applications which we indicate by paragraphs.

First: We have at present the completed horse. He is a superb example of the best nature can do, (excepting man). He is the height of beauty, symmetry, swiftness, strength and animal intelligence. But the horse has reached his maximum, and can go no further. He is now a *cul-de-sac*, (Lull, Ways of Life, p. 205). But he still possesses the same cells. If it is their nature to evolve, why do they not go on to a change of type,—for example to a rhinoceros or tapir, which are of like skeletal structure, and might show at least a little progression.

Second: It is not the mere instance but the law by which the horse progressed which we are to examine. This is also the scientific intent. As to the horse we have the assurance of science that the laws have not changed. Prof. Loomis, (Evolution of the Horse, Preface, p. VIII), says:

"The laws under which the horse changed from a tiny woodland animal to the superb desert conqueror are the same as those under which we and other animals live."

Third: Taking Prof. Loomis' figures for time, life began 1,600,000,000 years ago, (Tables; Evolution of the Horse, p. 24). The earliest appearance of the "Eocene horse" was 55,000,000 years ago. This leaves more than 1,500,000,000 years unaccounted for, on the most authentic estimate of his existence. Errors in time are not important, but it is not much of a biography, purporting to include origin as well as history, which omits thirty times as much of the horse's story as it includes, and here the story of his evolution from anything inferior is omitted, except by assertion. Perhaps he never had any earlier history. This is in harmony with Prof. Loomis' view. In Evolution of the Horse, p. 27, he says:

"The first of our horses appears a little before the middle of the Eocene, or about 45,000,000 years ago, and *the whole history of the family is within this time period.*"

If his story, as thus told, is not exaggerated it begins with the first recognizable horse, and does not even *tend* to prove that he was of common descent with other living creatures, deriving from an earlier unit. Nor, so far as this writer can learn, does any other investigator carry him farther back. There are a few guesses, but none purporting to be based on anything definite.

Fourth: The entire family of horses in America, represented by fossils of or since the Eocene, and from which the early history of the horse is ex-

tracted, died out and became extinct before the end of the Pleistocene, (1,000,000 years ago); (Evolution of the Horse, p. 169). All died out in Europe at the end of the Eocene, (Ibid. p. 96). The present horses therefore could not have descended from either of them. This also is the opinion of Dr. Lull, (Ways of Life, p. 205), who, speaking of present horses, says:

"A creature which first appears in the Pliocene, apparently in both the Old and the New World."

Fifth: The utmost that can be claimed therefore is that the fossils indicate that prior to the Pliocene there were animals which are *supposed to be* of the same type as the present horse, though not in its ancestral line. But even that is a strain on the imagination, for the whole is very remote, and has no supporting facts. If, as claimed by eminent scientists quoted elsewhere, the whole question of solidarity turns on structural resemblance then they are still on far from safe ground. Dr. W. D. Matthew, of the American Museum, writing in Encyclopedia Americana, Vol. 14, p. 392, says:

"Ancestry of the horse family has been traced back to nearly the beginning of the Tertiary, without an important break. During this long period of time, estimated as 3,000,000 years, these animals passed through important changes"; etc., etc.

From Eocene to Tertiary therefore the relation of the fossil to the horse is mere inference. The very first instance mentioned was when the supposed fossil (very unlike the horse) was discovered. It was long supposed to be a coney, (Americana, p. 398), and was so named. It was no larger

than a cat, and had four toes. The whole resemblance turns on a supposed similarity in teeth. Prof. Edward Wilbert Berry, Professor of Paleontology in Johns Hopkins University, in his recent book (1929) on Paleontology, p. 307, says of the horse:

"The oldest known fossil that can be called a horse belongs to the genus Eohippus, of the Lower Eocene. * * * Eohippus can be called a horse only because it is the most primitive type that has yet been traced in the genealogy of the modern horse. The reader would not recognize it as a horse, and neither did Richard Owen, the great English anatomist, who described its skull as Hyracotherium * * * (coney or hyrax-like beast) * * *. The various species ranged in size from that of a cat to a fox-terrier."

This we need not discuss, but it is apparent that even when fossils comparable in some respects are found they may and often do differ in size and character, and many of varied shape and size *are contemporary*. They cannot therefore belong to any particular line of descent or order of succession. When the supposed horses died out in Europe they were succeeded by the rhinoceros, (Evolution of the Horse, p. 93). Dr. Matthew, in Americana, says:

"The first ancestor of the horse line is very difficult to distinguish from the contemporary ancestors of the tapir and rhinoceros."

And he writes that in late Eocene in Europe there were certain differing fossil animals, one as large as a rhinoceros, one like a sheep, (and others intermediate). One was 48 inches high. These, by the same names, are designated by Prof. Loomis as horses.

Prof. Loomis' conclusion as to the line of descent, is in this vague language, (Creation by Evolution, p. 231):

"The geological record reveals to us of course only the bony parts of the numerous horses whose remains have been preserved in the rocks and discovered.* * *

We do know enough to assume that a continuous series of horse-like forms, inhabited the earth for ages."

Sixth: The assumption therefore that the cat-like fossil of four toes was the ancestor of the Percheron horse sifts down to the proposition that it *might* have been. But even that is based on a number of other assumptions, some evidently pure guess, for which there is no evidence in the fossils, and which conflict with other ascertained facts. For example, dealing with Pleistocene horses, Prof. Loomis shows that they were *not* at that time small, and increasing in size, as the theory implies, and as many writers assert. On the contrary there were found in America, (the source of large supplies of ancient fossils), Equus Occidentalis, which (p. 158) "equals or somewhat exceeds the average domestic horse"; also Equus Pacificus, which "equals our largest draft horses." These greatly puzzled the distinguished professor, though not enough to wholly destroy his faith in the doctrine of development, as applied to horses. He says, however, (p. 153):

"In America it is often difficult to place in the proper subdivision the many kinds of horses.* * * Most of them have been credited to the first interglacial period. The number of species found in this early phase is bewildering, over twenty being already described, some of which

may be admitted with others. Several are based on teeth alone, but there are many of which considerable parts of the skeleton are known."

And see Dr. Gregory of Glasgow, quoted in the next chapter in respect to proof of succession in fossils.

Seventh: We note, as an answer to the query whether the horse can, by reason of its more adequate fossil history, be brought into line with the theory of unit origin, or even with our concept of an intermediate or "tribal" ancestor, that Prof. Loomis thinks it cannot. On page 192 of his book he says:

"The earlier students of horses felt that all the varied breeds of horses, from the Percheron to the Shetland pony, were the result of selective breeding, all coming from a common ancestor. Latterly most students, (Duerst, Ridgway, Ewart, Antonius), after careful and varied investigations, have come to the conclusion that our horses and ponies have in their veins blood from more than one wild species, that is, they have a multiple origin; this in spite of the fact that the horse has changed less under domestication than any other of our household animals."

Another instance is the Elephant:

In Prof. Loomis's article about these in Creation by Evolution, p. 232, no mention is made of a time when the elephants were anything else, nor does any fact even suggest it. The first fossil found was small, and it is doubtful whether it falls at all within that class, but in early deposits the fossils of characteristic elephants have, it is said, been found. We have shown elsewhere that they were not in succession, in time or place, and it is

a mere guess which was first in order. But aside from that, the elapsed time between the supposed unit of universal origin and the first recognizable elephant fossil was immense, and among the conditions existing within that time there is no trace of the elephant at any stage. But in Pleistocene time (says Prof. Loomis) there were "*at least twenty species*." These of course differed. There is no basis known for tracing them to an ancestor, —common or uncommon. They of course did not descend from one another. They have all disappeared except two, one found in India and one in Africa. If we can infer that their descent is from those of the Pleistocene it must be because of resemblance. Back to the time of the appearance of the first fossil having elephant characteristics we can account for the changes equally well, and by the same criteria, whether they originated as described in Genesis or under the hypothesis of unit origin; but the very evidence which carries us back only that far is cited as proving that the elephant originated in an indefinable, unpredictable speck of protoplasm. Nothing therefore supports that contention but what Prof. Coulter calls "the scientific imagination." We were promised proof, and are offered a hypothesis. We were promised bread, and are given a stone.

CHAPTER VIII

Succession Since the Fossils

In this chapter our inquiry will be whether there are materials for comparison to be found in the period following the earliest fossils, by which the supposed doctrines of evolution can be tested; and whether it is not true that as soon as assured progression and succession appeared at all they were uniform, and according to type.

such as large and small elephants, large and small horses, large and small lizards, large and small insects, large and small birds, which is clear enough, does not prove that the earliest were small, but since there is no showing of the order of succession it may as well be supposed to prove that the larger were earlier. If however that were otherwise it is no evidence of unit origin, nor does it bear on that question. On the contrary the fact that among the fossils were both large and small animals of the same type, and of the same period, only varying in details, seems to indicate that it was always so, and that to justify a different view we must look for more facts and a better reason. The probability that there was no consistent development from small to large can be best shown by tracing the life experience of a few individuals of which the most complete fossil history has been found.

Probably the illustration most favorable to the theory of development is the story of the horse and its lineage. We have dealt with its story elsewhere, chiefly as to continuity since the fossils, but in different aspects, and especially because of its more complete history, (since it brings out with special clearness the vagaries of the evolution theory), it seems better to use it where it applies than to multiply partial instances. Here we use it to show the total absence of evidence to prove orderly *succession*, even under the most favorable known conditions, from little to great, or from imperfect to complete. We draw the following

chiefly from an article in Creation by Evolution, written by Prof. Loomis of Amherst, and from his book "The Evolution of the Horse"; but all writers on the subject cite the horse as a convincing example of the way evolution works in nature. Prof. Vernon Kellogg, speaking of proofs by paleontology, says:

"The horse is the classic example."

Prof. Romer of the University of Chicago, says in "The Nature of the World and of Man":

"The history of the horse is better known than that of most groups of animals."

And Prof. Matthew, in Americana, says:

"The history of the development of the horse through the Tertiary period affords the best known illustration of the doctrine of evolution."

Many others give it like corroboration.

Nothing is known of the horse's ancestry, as we have already shown, back of the time of the earliest fossils said to indicate him. Except for the assumptions of the evolution theory it may be said that he begins there. "*The theory*" means, in this and many other connections, the opinion of the scientist, his construction of the facts, his selection and arrangement of the materials, and his determination of order and succession. The conclusions of the investigator, even as to the horse's career since the discovery of his supposed fossil, though assumed to be as correct as the scientist can make it, is an inference, and possibly colored more or less by the predilections of the historian. Certainly it

is not proof. For an example of a proponent's opinion, wrought into a purported statement of fact, dealing with immense numbers of horses, scattered all over the world, (105,000,000 or thereabouts), of varying sizes, from pony to Percheron, we quote Dr. Loomis, (Evolution of the Horse, p. 225):

"The line has been, on the whole, continuous, with surprisingly few deviations."

From the information gathered below it is evident that this is interpretation only, and not sound as a statement of fact. In Creation by Evolution, p. 230, he says:

"The most notable evolutionary changes in the horses consist of an increase in size, changes in the size and structure of the teeth, and, most conspicuous of all, changes in the form of the foot."

Yet he suggests no method of deciding whether the small animals were first or last in order of succession; and there is nothing now to judge by. This is important, because if the differences were only normal "variation" the horse was then what he is now, and has never developed. Deviations in head and teeth or feet mean nothing on this point even if the mere assertion of investigators that these were all horses is a determining factor. This writer, in the beginning, (p. 4) declined to be governed by the investigator's inferences, though accepting his *facts*. We should in any event lose confidence when we find them asserting resemblance between man and the shrew; the pig

and the whale; the cat and the horse. There are at present ponies and Percherons side by side. If the Percherons, (or the Texas horse mentioned below, larger than the Percheron), were first, then the small ponies, asses, zebras, etc. were abnormal changes, or possibly the result of "reversed" evolution. An order of succession from lower to higher is vital to the development theory, and is confidently asserted by Dr. Loomis and the other writers in reference to the horse, but it is not proved, nor is it in general capable of proof.

Prof. Gregory, of the University of Glasgow, in Creation by Evolution, p. 120, in describing the sources of the fossils, says:

"The opportunities for tracing progressive evolutionary series of fossils in the field are not numerous; such series can be found only where thick deposits are laid down continuously under the same geographical conditions; so that for a long period forms were deposited one above another and the intermediate forms were preserved in their right order."

The horse fossils are not traceable in any particular order. As will be seen below many of the known fossils, differing greatly in size and other details, were found in the same fossil beds. The success of men in breeding special types, qualities and sizes of horses, while maintaining their family characteristics, and the perserverance of such types —i. e. Shetland Ponies, Arabians, Morgans, and others, each capable of being recognized by description, is inconsistent with the contention that they were ever something else. These, living together side by side from the earliest record of their

existence, and found side by side in the same fossil beds, are evidence, as this writer thinks, that they did *not* descend either from each other, or from a common ancestor. At least affirmative proof is lacking. Dr. Loomis mentions the finding in Texas (Pleistocene) of one,—"the smallest of the true horses," and another "larger than our largest Percheron." There are now twenty species, says Dr. Loomis, all true to type. This is easier tested than in most cases, for the horse has eighteen or nineteen vertebrae, and a like number of ribs, whereas most other mammals have but twelve to fifteen; (Evolution of the Horse, p. 47). In this the horse resembles the elephant, which has the same number; and so also have the rhinoceros and tapir. These ought, it would seem, to be more closely related than the pig and the whale, if the scientist were consistent; but it is remarkable that in spite of these unusual characteristics, alike in both, the two latter are said to be "closely related to the horse," while the elephant, of similar rib structure, is "entirely unrelated"; so says Prof. Loomis. He has of course, technical reasons for this, but the mere fact conflicts with what Dr. Newman deems the strongest argument for the doctrine of unit origin,—i. e. similarity of structure. If that test were applied here the conclusion would probably be that the horse, the elephant, the rhinoceros and the tapir were as closely related to each other as the varying sizes and types of horses. We have shown elsewhere that it is impossible to trace the descent of the horse back to

the early supposed fossil, and especially not to any animal of a different character. Since therefore, at the time the earliest fossils were laid down, horses were characteristic, and of varying sizes, large and small, scattered over the whole world, and some living side by side, and since they live now side by side, but preserve a separate identity, and are still recognizable whenever found, the proof, to the ordinary human apprehension, is that in all their history they have never evolved at all, in any proper sense; the differences even now are only in size, and in those minor variations which we observe in dogs, or cows, or cats or children.

The following quotations from Prof. Loomis (Creation by Evolution, p. 225) show how much of the continuous evolution of the horse is evolved from the scientific imagination, and how many opposing facts one is compelled to ignore to reach the conclusion that there was an order of succession implying development,

"By the end of the Eocene time, (the earliest fossil beds), or a little later all the European horses seem to have disappeared, and there were none there to compare with until the Miocene time," (more than 30,000,000 years,—see table p. 226).

"In Miocene time the horses differentiated into three groups or types."

"In the Pleistocene epoch, which followed the Pliocene, horses were abundant in both America and Europe. These horses, which were presumably the descendants of Pliohippus, are so nearly like the horses now living that they have all been placed in the genus Equus." (Creation by Evolution, p. 230).

"Pleistocene deposits found in all parts of the United States * * have yielded remains of horses some smaller

than even the smallest living pony, some as large as any living horse, and one species the *largest horse* known." (Creation by Evolution, p. 230).

Ib. 231:

"Our domestic horse is a descendant of European breeds, which are numerous and extremely diverse in size as well as in other features."

So the smallest and the largest horses were living at the same time; and there are very small and very large horses living now. Who can tell whether our ponies have descended from the large horse of that day, or *vice versa*. Yet the order of progression is vital to the theory.

The Elephant as an Illustration.

The story of the elephant, also by Prof. Loomis, as told in Creation by Evolution, is the narrative of a long life, but omits twenty-nine thirtieths of his life period as supposed by the evolution theory. Except in minor particulars, its physical changes have been influenced only by environment. Dr. Lull, in Ways of Life, p. 107, says on this point:

"Thus in the elephants and mastodons, aside from increasing bulk and the modification of the limbs to carry the weight, the evolutionary changes are confined almost entirely to the head."

and on p. 210, he says:

"With the proboscidians, which include the mastodons now extinct, and the elephants, which still remain as relics of a widespread and formerly abundant race, evolution affected only certain localized portions of the animal's frame, leaving the remainder almost untouched. * * * the principal bodily change being the great in-

crease in size until the creatures have become the most majestic terrestrial animals."

Creation by Evolution, p. 238:

"The Pleistocene Elephants of Africa are less well known. But two species are still living on that continent; the African elephant, some forms eleven feet high, and a dwarf form from the Congo, which is but four or five feet high."

"On Malta for instance there were developed two dwarf forms * * * consistently small; some five feet high, and the tiniest of all elephants, but three feet high. Sicily, Cyphus and Crete also had dwarf varieties."

The growth in size, and modifications resulting from changes of climate, etc., can be accounted for on the basis of ordinary and familiar experience, and do not require an artificial theory to explain them. The story of the elephant as narrated by Dr. Loomis is consistent only with descent from ancestors of *like* characteristics. But there is another supporting circumstance. It is said that a fossil animal, (found at Fayum, Egypt), has been discovered having a frame much like that of an elephant, but only two feet high, and of an early geologic age; and it is argued that the elephants, mammoths and mastodons descended from that pigmy. The fossils, standing alone, would not prove this, and other circumstances indicate otherwise. Perhaps the infant elephant of Fayum died without progeny. Perhaps the earliest elephant had other ancestry. But two marked features are being overlooked, i. e., the subsisting elephant which we are seeking to account for, is not shown to have lived in Egypt. They were at one time

widely scattered, but Egypt and South Africa are far apart in space, and now, at least, separated by effectual barriers of mountain and climate. It is also true that the fossil periods were far apart, and that leaves an unfilled gap of succession by descent which can only be bridged by inference. The evolution theory is affirmative, and has the burden to show that the elephants from nine to thirteen feet high, living only in India and South Africa, are the progeny of the two foot creature, only remotely resembling an elephant, dating millions of years further back in history, and located in another part of the world. No connection, probable or, as this writer thinks, possible, appears. The same is true of all the intermediate stages mentioned by Prof. Loomis (Ib. p. 235). The nearest fossil in point of time was in Miocene time, *in Germany*, and the next was in Pliocene time, *in Greece*. The fact of development is inferred from the fact,—if such it was,—that under isolated conditions, and at a long precedent date, there had been a little animal found in Fayum both like and unlike an elephant, and that much later a series of great elephants was found to be living in Africa and India,—"the most majestic of terrestrial animals." Other facts show how far fetched is this inference. In Pleistocene time, when the elephants were at their highest state of magnificence, and some in Southwestern America were thirteen feet high, *two* little elephants (called dwarfs) existed in Malta, and others in Sicily, Cyprus and Crete; (Ibid, p. 238). The great ele-

phants and the tiny ones were in the world *at the same time*, though half the sphere apart, and neither could have been the ancestor.

Like conclusions might be drawn from the story of the camel, the deer, and certain others; but an interesting reflection here is that the scientists, whose very name identifies them with knowledge, and conviction founded only on knowledge, appear to be even more credulous than they will permit their adversaries to be.

None of these animals had any known ancestor, but if they had he must, unless the law of heredity was departed from, have been of the same type, which would be sufficient alone to answer the proposition. Dr. Newman, in discussing heredity, says, (Gist of Evolution, p. 50):

"We would be much shocked if the young of a given species of sparrow were anything else but members of the same species as the parents."

and on p. 49:

"If anything else should happen than what we expect we would call it a freak of nature, a sport, or a miracle."

These instances, and others noted elsewhere show, the writer thinks, that even if some kinds of life originated in the "speck of protoplasm" many did not, and this is enough to show the fallacy of the theory of evolution, which is staked upon unity. It has attractions as an idealism, and is interesting as a topic for speculation, but it is now presented as a lesson in science, which requires proof of the facts and harmony with the

law. The tests to be applied, and which have been here applied, are simple and definite, and approved by the more learned scientists, and it is plain that both nature and experience conform.

Even Dr. Newman, who has a poor opinion of any one doubting the theory of unit origin, has stated already the doctrine just mentioned. He says: (Gist of Evolution, p. 45):

"It (evolution) depends for its validity not upon conjecture as philosophy, but upon the same sort of evidence as do other natural laws."

And at page 19:

"If it (the theory of evolution) in any respect fails to accord with the facts it must be abandoned or modified so as to fit the facts."

And Dr. Henry Fairfield Osborn, in Origin & Evolution of Life, Introduction p. 1:—(Note), says, to like effect:

"Science consists of the body of well ascertained and verified facts and laws of nature. It is clearly to be distinguished from the mass of theories, hypotheses and opinions which are of value in the progress of science."

Since then the theory of evolution fails as a *universal* rule; and since it has, on its face, no standing without that; and since even in the smaller fields its inadequacy has been shown, why should its proponents find it so hard to deal seriously and respectfully with its only suggested alternative, although it seems sound on their own assumption, in every respect except that which is most easily demonstrated,—i. e. the divine origin of life.

We close this chapter with a few of the weightier reasons for deeming it futile, without new light, to hope for proof of a natural origin of Life.

a. Protoplasm can be found now, and has always existed, with its original capacities; and we find nothing in it to prove or harmonize with the extraordinary potentialities assigned to it. If inferences are to be drawn, why can we not infer something from that?

b. It is by examining it *at present* that those supposed early qualities are ascertained, for if it is supposed that they differed, then the earlier characteristics could not be known at all; but by the common testimony of scientists, including Huxley, it operates now as in earlier ages. Yet the facts asserted require something very different, and the scientists themselves stake their theory of life on wide departures. Is the error in this hard to find?

c. There are now, and always have been, definite lines of descent, which are inevitable, and which the scientists agree were always the same. Although a few, entirely without proof, deny that descent followed its present course, and rest their theory on chance or accident, it is generally asserted that there is no hit or miss about it.

d. Every line of descent now follows its own nature to the very end, and any substantial departure in kind would be a "freak of nature, a sport or a miracle"—to quote Dr. Newman. Was it ever different?

e. When these lines of descent are in action now, and even when by the theory they sepa-

rate from the main trunk of the Tree of Life, they do not cross, or connect, or transfuse. "The branches of the Tree of Life do not communicate." Then each must have had the same "potentiality" from the beginning. This however is not the evolution theory.

f. The causes which are adequate to start one particular line of descent are adequate for every other, and in the nature of things special creation, as here construed, would be as effective, at least, as evolution. Those lines are now, (since the days of the tribal ancestor), distinct and traceable. By evolution, it is said, they began in one individual. By some means, by the time of the "tribal ancestors," they had clustered into typical groups and families,—"after their kind." This however must have required a new cause. By the theory of special creation they began *at that point*, and the "new cause" operated then for the first time.

g. Even by the evolution theory the line to emerge in horses and the line to emerge in reptiles and that to emerge in man, though begun a million years apart, were bound to proceed directly to an appropriate climax, at least from the time of the "tribal ancestors," in the same manner as if all began at the same time, but in independent lines. Why should the law of heredity operate differently before that time?

h. There was no more reason in ages long past than now why a speck of protoplasm competent to emerge into a horse, and nothing else, should not have matured as rapidly as now. It takes less than

a year now. Why should it ever have taken a billion?

i. There is no reason why a cell which must inevitably emerge in a fly, and can mature in a few minutes, should occupy as much time in the original process to maturity as an elephant, which may take a year. For this there is no reason in nature, and the facts are known. It would avail nothing to say that nature itself admitted of these varying periods of gestation, for something more than acquiescence was involved. Extraordinary intelligence was required to originate that condition, and maintain it.

j. By consent of the scientists themselves a theory of development ought to go no further than the chain of facts which it assumes to explain. As the known facts are equally consistent with type origins beginning, one with a unit of origin, and the other with a "tribal head" for each type, and both with a cell touched with life; and as there are supposed to be now three quarters of a million different species, each limited,—in its immediate origin and its inevitable outcome,—to its own type; either theory might be said to conform, *that far*, but only one conforms with known facts and law in respect to the manner in which the varied types come about; and the theory which does *not* conform is the one supported by the scientists. The other theory is consistent with nature *now;* with law *now;* with reason *now;* and we know, tangibly or factually, no facts implying that it was not always so. The theory of a single

parent for the teeming life of the world is not only inconsistent with nature and law, which we are agreed were always the same, but it is artificial in method; so incomplete as to be unintelligible; wasteful and chaotic; and thus not tenable. To this writer it seems to have nothing in its favor except an idealism,—beautiful but not sound,—an iridescent dream.

CHAPTER IX

A Summary of Conclusions

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There seem to be only two theories of the origin and progress of life worthy the name, and they have been often compared, not always sympathetically, and sometimes not even fairly. It seems wise to begin our summation with a few outstanding things relating to these, and a correlation of the general results; following these with our other conclusions.

1. Both these two theories begin with Life, which is a miracle. It is not always called by that name, but such it is essentially, for neither its arrival nor its operation has any natural explanation. The word "miracle" would probably not be objectionable as a descriptive term if not understood to have a partisan meaning.

2. Each had its own starting point, and each a known outcome, though far apart in time. The story of that period of life lying between them must either be a recognizable path, with milestones marking the way, or a haphazard trail, through a jungle, as it were, with no compass and no guide. If the first, we would expect to find it platted and surveyed by a law-maker,—known or unknown; the other could be nothing more than a succession of accidents. Which of these does progressing life follow? Certainly not

both. Rather it should be asked which of these follows life, for the true course of life furnishes us the only factual basis for a correct theory, and it is from this that we must formulate our code of the laws. From researches in the past, i.e. from general experience,—we learn life's rules of automatic action, and we must trust them and apply them whenever the same question arises again.

3. The originating cause of life and the source of its power can not be determined by the senses, nor are they settled by authority in any given form acceptable to the protagonists. When the facts are known, however, each is at liberty to formulate the answer for himself. What this will be is not the question here. We are seeking only to know how the laws operate, and what results they produce, i.e. the *facts* of advancing life. The evolution theory is presented to us by scholars as truly explaining how all life, in its varied forms, has reached its present stage; and this we are examining. No one saw life begin, or observed its progress in its early stages. The laws of nature are our chief test of verity. A theory is not sound unless it conforms to those laws. The end or outcome is all we certainly know. The beginning and the intermediate stages are the subject of our search. If a supposed course by which life is said to have proceeded and progressed does not conform to the known laws of nature it must be rejected. If it *could not* follow the course supposed then it *did* not, and in that case we know the theory to be wrong.

4. The history of life is not the story of an individual prolonged. The life of a single person is too short. Life, for the world, implies a series of beings *in succession*. If they did not move onward, then the first stage would also be the last. There is no law except heredity by which living beings succeed each other. One dies,—another arises. It has always so happened in the past; it will always so happen in the future. "The king is dead; long live the king." The succession of life, however, is by *descent*. We know no other.

5. By that law we are aware then that in the typical group or family the characteristics of parent and child are similar. Variations are within the boundaries of closely related groups, and are limited to form, color, size, temperament, and similar details; and even those are governed by some law, which operates uniformly, under like conditions. Progeny is always of the same kind as the ancestor. Dr. Newman puts it clearly when he says:

"We would be much shocked if the young of a given species of sparrow were anything else but members of the same species as the parents."

Dr. Bates is equally explicit when he says:

"The evolution of man is shown to have been a result of certain laws that hold throughout the animal and plant world."

The principle of heredity then is the only postulate any investigator needs to assume in order to test a theory of descent.

6. That law when fairly applied to the story of life has these three outstanding features,—progression, continuity and uniformity. It begins with life, and its automatic action; and it emerges at last into the conditions we see around us. All intermediate stages *must* conform to the law of heredity. When it is said that present life conditions came about thus and so, we have only to apply our test and accept the result.

7. It is plain from the facts that the theory of unit origin and development from one to many types conflicts with what we deem the true law of heredity, not only at the beginning, but with every new generation. If it ever touches its pattern, which is the law, or approaches its charted road, which is the course marked out by the law, it is only incidentally, and here and there. It controverts the law of heredity, and departs from it in its most vital requirements; as when it asserts that man and the apes, or man and the mouse, (shrew), or the whale and the pig, or the elephant and the lizard, have the same ancestors. The mere assertion that it was so proves nothing. The law itself is the test, and if we differ anywhere it ought to be only about that.

8. Fortunately we do not differ about the essential nature of that law, nor whether it is the final test. Our difference is only whether that law, properly understood, will admit of a kind of change and departure from the original type which could and did emerge in our present three quarters of a million classified species. It is perfectly

evident, and is frankly stated by the scientists themselves, that a single, undeviating line of descent from one unit would not produce what we see.

9. The pivot on which the theory turns is the query whether the changes asserted—which, it can hardly be denied, are fundamental in their character,—would produce, as a net result, a new kind of personality without a new cause; and also whether this could possibly occur without assuming different potentialities, or asserting changes in germ plasm, equal to the aggregate number of present species; and whether also these can, in the course of descent, vary, not only from the original parent, but among themselves, and become as widely separated, and as finally and permanently hardened into a recognizable character, as such varied species now are. The net question is whether the law of heredity admits of this or not. This the writer is convinced could not possibly be.

10. Departures, wide and definite and permanent, are asserted by the proponents of the theory confidently, as if admitting of no doubt,—as when a land mammal is said to have advanced to a wolf-form, and then receded, first to an amphibian, and then to an eel, and so continued to the present; or as when the normal course of development itself reversed, and progressed in the other direction; or as when the eleven reptiles, after growing to an immense size, reverted to their earlier aquatic habits, and have so remained; or as when, as is

admitted, numerous cases for millions of years have continued without change. Not many of these can be accounted for without a special change in its own character, distinct from all the others; and many of them must also be, by the law of heredity, capable of *successive* changes, reversing and changing, both in form and type. This also the writer considers incredible.

11. From the time when common ancestors of species can be recognized and defined, both theories, (evolution and special creation), present only the common problems of change; but prior to that time they differ essentially, or go on to differ, in structural organization, which can not fall within any known law. It is merely theory, and can only be asserted because the theory requires it. These things are altogether unknown in experience, and cannot be defended. The tendency which could have such an outcome must be definite, and also final,—even though by small advances,—as if the final outcome of one line of descent should be both a pig and a whale; or a bee and an elephant; or a squirrel and a man; or one *or* the other, not capable of prediction. Is not this hard to believe?

12. To compare now the two "rival" theories, we note that under both life exhibits itself first in a cell or series of cells. By the evolution theory every species, far back in the ages, originated in a single cell. This means one cell for the whole world of living things, beginning no one knows how. By the special creation theory there was one

cell for each *species*, beginning with the divine fiat. Both arrived at the time and condition of the "tribal ancestors." The question is whether there was, or was not, a prior period of slow development. On that point the scientist has shown that there is no evidence at all. Why then should it be accepted?

13. Judged by what we know of the law of heredity and its limitations, the subsisting three quarters of a million species of living beings could by no means, consistent with that law, have originated in a single cell; and therefore they did not.

14. All natural laws were coexistent with life, and were never different. What could not happen at the time of the "tribal ancestors" could not happen at the time of the unit of ancestry. Thus the theory of evolution has no support.

15. Evolution affirms that protoplasm had its start in the water, but the evidence shows that many species could neither originate nor survive in the water. Some were adapted to life on the land; others in the air. Families were thus divided, apparently by mere impulse, as no cause is given, and no explanation appears. If this is supposed to describe heredity it is incredible.

16. The theory of special creation is more intelligible. By that theory each species had its independent origin. All living things (aside from man) were "brought forth" by the sea *and* the earth; each "*after its kind*." This admits of the application of the simple test of heredity, where the other does not. The only feature not thus

explained is the original introduction of life, which is the same in both theories, and equally without a scientific explanation.

17. If each species *began* at the dating of its "tribal head," as special creation did, nothing would be gained by setting back the date of origin, except to confirm an imposing but incredible theory.

18. The theory of an original unit, and the search for facts to confirm it, furnish the only reason for such a contention, for, except on that point, the two are not essentially different; and Dr. Newman says that a theory has no reason for existence except to explain the known facts.

19. Beginning with a cell for each head of a family or species, the true explanation of "variation" in living beings will be the same under *both* theories of origin, and that ground of controversy will be gone.

20. "Variation," within the limits of species, was never denied, so far as this writer knows. No intelligent man since Adam could have failed to observe, in himself, his own family, and his family pets, variations in size, shape, color and temperament. It is said by some that this is denied by supporters of the theory of creation, but this writer is persuaded that no intelligent person ever said so, in that connection.

21. Every known change,—variation, fluctuation or mutation,—is within the lines of species, (properly defined); not an instance to the contrary has been mentioned, and the writer knows of none.

22. Variation must have a physical reason, under a law constantly operating, and the fact that it does not happen to everybody in the same family is because the conditions are different.

23. The operation of laws of nature, and changes within species, are neutral, and cannot prove anything directly. They move on their steady course regardless of men, or their desires or hopes. The only way to test the soundness of a theory is not to guess about it, but to compare the known facts with the known law. This ought to be simple.

24. Beginning with the origin of life, which, having no other explanation, must have had a creator, the doctrine of evolution seems to be only an effort to evade that result. This involves so many errors and impossible assumptions that if we are limited to a choice between the two, depending on which is the most convincing and satisfying, it should not be difficult.

The Result:

It is not the function of this writer, nor would it be consistent with the position he has maintained, to affirm any theory of either origin or growth. He presumes no further than to question the one others have propounded. It is enough for him to say that after careful and candid inquiry he deems this altogether untenable. Perhaps some one will devise a better one, still adhering to the proposition that nature alone can accomplish these results. Perhaps the men of science as a body will return to the simple and adequate conviction

of Professor Pupin, who says of the electrons that God made them.

Genuine wisdom, which includes facts and inferences, alone can evolve a true answer.

"Where shall wisdom be found; and where is the place of understanding," says the scripture. Let us wait and see.

THE END.

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